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MEMBER OF THE ROYAL COLLEGE

of Surgeons, London, &c.

TRANSACTIONS

OF THE

PHYSICO-MEDICAL SOCIETY,

OF

NEW-YORK.

VOL. I.

"Primoque medendi scientia sapientiæ pars habebatur; ut et morborum curatio, et rerum naturæ contemplatio sub iisdem auctoribus nata sit: scilicet iis hanc maxime requirentibus, qui corporum suorum robora quieta cogitatione, nocturnaque vigilia minuerant." CELSUS.

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"Transactions of the Physico-Medical Society, of New-York. Vol. I. 'Primoque medendi scientia sapientiæ pars habebatur: et ut morborum curatio, et rerum naturæ contemplatio sub iisdem auctoribus nata sit: scilicet iis hanc maxime requirentibus, qui corporum suorum robora quieta cogitatione, nocturnaque vigilia minuerant.' Celsus."

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JAMES DILL,
Clerk of the Southern District of New-York.

PREFACE.

In August, 1815, several young gentlemen of the Medical Profession, residing in the city of of New-York, formed themselves into an association for the purposes which are distinctly specified in the Preamble to the Constitution, prefixed to this volume. It is unnecessary to say any thing additional to what is there observed respecting the advantages which such institutions, if properly conducted, are calculated to afford both to individuals and to the community. The reasons there assigned, for associating, not only prove the expediency of the measure, but even make it an incumbent duty. It was also thought that circumstances arising from previous intimacies, would be particularly favourable to such an undertaking, by superadding cordiality to co-operation.

The principles on which the Physico-Medical Society is organised, are in some degree novel, in this country; but they are, in many respects, simi-

lar to those of some European institutions, which deservedly rank high in public estimation.

It will be perceived by the Constitution, that the exercises more immediately relating to the primary object of the society, are restricted to the reading of *original papers*. This is not only the most effectual method of collecting such detached and insulated facts, as may contribute to the alleviation of human suffering, and the advancement of useful knowledge, but, at the same time, an extensive scope is allowed for active and systematic research. Thus, incentives are offered for the exertion of talents, and encouragement is given to industry, whilst inducements are also presented for acquiring, and opportunities for exhibiting, the qualifications of the physician, and the accomplishments of the scholar.

The duties enjoined on the fellows by the Constitution, are *positive;* and the punctual enforcement of this regulation, constitutes the best guarantee of diligence, and is the surest means of promoting the objects of the society.

The present volume consists of communications selected by the Committee of Publication, from those which have been read before the society since its formation.

To what degree the objects of the association are realized in its contents, and how far it may be received as a pledge of future exertions, remains for an enlightened and a liberal public to determine. It is submitted with diffidence, and rather from a hope that it may contribute to the stock of useful knowledge, than from motives of ostentation;—and whatever solicitude may be entertained by the society for the reception of the first volume of its transactions, yet the publication of it is equivalent to an expression, that it is deemed sufficiently interesting and important to merit a share of public attention.

A continuance of favours is solicited from those gentlemen, who, though not attached to the society, have obligingly furnished the voluntary contributions which constitute a part of this volume. We trust that their example will have an extensive influence. Communications on subjects embraced by the views of the society, will be gratefully received. Interesting cases of disease, and facts of a practical tendency, will be particularly acceptable.

Columbia College,
New-York, Nov. 1817.

PREAMBLE

TO THE

CONSTITUTION

OF THE

PHYSICO-MEDICAL SOCIETY,

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That more can be accomplished in the improvement of knowledge, by the united exertions of associated individuals, is a truth which rests on the dependence of our nature, and to which, a comparative view of the progress of learning since the revival of letters, fully attests. The vast acquisitions to science, which have resulted from the labours of some of the learned societies of Europe, indubitably prove the superior advantages which attend combined exertions.

In our own country, so far as we have followed the example of Europeans, much has been effected, but much more remains to be accomplished. This is particularly true in the Science of Medicine, and those branches of learning with which it is immediately connected. Hence there appears

to be an urgent necessity for the union of individual efforts and talents, in order that any thing of magnitude may be achieved.

It is an unquestionable fact, that the importance of the Medical Profession has not been sufficiently appreciated in this country;—in consequence of which, it has been degraded, even by its own members, from its high rank among the liberal pursuits, to a mere avocation or trade. It, therefore, becomes a desirable object, to multiply associations, as the most efficient method to counteract those evils, which are calculated not only to impede the force of individual exertions, but even to prevent all progress in the acquisition of knowledge.

Perhaps no country in the world affords a more extended field for research than our own; and all that is necessary for the advancement of Medical Science, and the improvement of the Healing Art, is a diligent use of the advantages, and a proper application of the means which we possess.

We have hitherto been too much confined to rules prescribed by European schools; but, whilst we avail ourselves of foreign labours, we should not neglect to explore and cultivate our own soil, which will abundantly reward the labourer with a rich variety of productions, particularly adapted to the peculiarity of our necessities.

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From this view of facts, a number of members of the Medical Profession have formed themselves

into a society, the express objects of which are, to improve themselves in the knowledge of their profession, and to contribute to the advancement of Medical Science.

That the views of this Society may be completely accomplished, its members are required to contribute by

I. Medical and Surgical Essays.

II. Observations on particular maladies, and minute descriptions of diseases, with the best method of treatment.

III. A detail of Medical and Surgical Cases, with remarks and conclusions.

IV. New facts in Anatomy, Physiology, Materia Medica, and Pharmacy.

V. Observations on Chemistry, Natural History, and the other collateral branches of Medical Science. Or,

VI. By discouraging abuses in the Science and Practice of Medicine, or the sophistication of remedies employed in the cure of diseases.

CONSTITUTION.

ARTICLE I.

SECTION I. This Society shall be denominated the PHYSICO-MEDICAL SOCIETY OF NEW-YORK.

SECTION II. It shall consist of Fellows, and Corresponding Members.

Section iii. The officers of this Society shall be a President, Vice-President, Secretary, Corresponding Secretary, Treasurer, a Council, a Committee of Publication, and a Committee of Abuses;—each of the Committees shall be composed of three members.

Section iv. All the Officers of this Society shall be annually elected by ballot.

ARTICLE II.

Duty of Officers.—Of the President.

Section i. It shall be the duty of the President to preserve order in the Society, to refer all matters of investigation to the several Committees, and, with the assistance of the Council, to direct the proceedings of the Society.

Section ii. If on any question there shall be an equal division of the Society, he shall give the casting vote.

ARTICLE III.

Duty of the Vice-President.

Section i. It shall be the duty of the Vice-President, in the absence of the President, to perform all the duties appertaining to the office of the latter.

Section ii. In the absence of the President and Vice-President, a member shall be elected by the Society, who shall execute all the duties of President.

ARTICLE IV.

Duty of the Treasurer.

Section i. It shall be the duty of the Treasurer, to collect all monies due the Society, and make an annual report of the state of the funds, and oftener if required.

Section ii. He shall discharge all pecuniary demands against the Society.

Section iii. The expences incurred by the publication of the Transactions of the Society, he shall pay by order of the Committee of Publication, and all other expences by order of the President and Council.

ARTICLE V.

Duty of the Secretary.

Section i. It shall be the duty of the Secretary to keep a record of the proceedings of the Society.

Section ii. He shall keep in his possession, all Medical Communications and other papers belonging to the Society, except at the time such papers or communications may be under the consideration of the Committee of Publication.

Section iii. As soon as the communications are received by him, he shall refer them to the Committee of Publication.

Section iv. He shall hold all the papers in his possession accessible to the members of the Society.

ARTICLE VI.

Duty of the Corresponding Secretary.

Section i. It shall be the duty of the Corresponding Secretary to inform Corresponding Members of their election, explain to them the objects of the Society, and respectfully solicit their co-operation.

Section ii. He shall read to the Society all communications and answers which he may have received or made during their preceding recess, and then deliver them to the Secretary.

Section iii. He shall answer communications made to the Society, previously submitting such answers to the President and Council, for their approbation.

ARTICLE VII.

Duty of the Council.

Section i. It shall be the duty of the Council to assist the President in the government and proceedings of the Society.

Section ii. They shall also, with the President, take into consideration all subjects referred to them, and report their proceedings to the Society.

ARTICLE VIII.

Duty of the Committee of Publication.

Section i. It shall be the duty of the Committee of Publication to select from the communications made to the Society, such as they may think worthy of publication.

Section ii. They shall, whenever they deem it expedient, from the number and merit of the communications, report to the Society that they have selected a sufficient number for publication.

Section iii. They shall also, whenever the Society deem proper, publish their selection, under the title of "The Transactions of the Physico-Medical Society of New-York."

Section iv. They shall return to the Secretary, all papers and communications belonging to the Society, after the publication of each number of the transactions.

ARTICLE IX.

Duty of the Committee of Abuses.

Section i. It shall be the duty of the Committee of Abuses, to inquire into any facts relating to abuses in the Science and Practice of Medicine, and the sophistication or adulteration of remedies employed in the cure of diseases.

Section ii. They shall, from time to time, report their proceedings to the Society, and suggest such measures as they shall deem most expedient for the correction of such evils.

ARTICLE X.

Election of Members.

Section i. If a Candidate for Fellowship be proposed, the President shall appoint a special Committee to investigate his qualifications, and they shall report their opinions to the society.

Section ii. If their opinion be favourable, he shall be ballotted for; and if three-fourths of the votes of the Society be in his favour, he shall be considered as duly elected; and as soon as he shall have signed the Constitution, he may take his seat as a Fellow.

Section iii. Corresponding Members shall be elected in the same manner as Fellows of the Society.

ARTICLE XI.

Duty of the Fellows.

Section i. It shall be the duty of the Fellows of the Society, alternately, according to the order of their names

affixed to this Constitution, to read before the Society, or transmit to the Corresponding Secretary, original papers, on some subject embraced in the objects of this Society; so that communications may be read by at least two members at each meeting.

Section ii. A copy of each paper, after being communicated to the Society, shall be delivered to the Secretary.

ARTICLE XII.

Of Meetings.

Section i. There shall be an anniversary meeting, which shall be held at regular periods from the adoption of this Constitution.

Section ii. It shall be the business of the Society at this meeting, to elect their officers for the ensuing year, to examine into the state of the funds, and transact any other business which may be considered expedient.

Section iii. There shall be an ordinary meeting of the Society every third month, commencing on the first Tuesday of September next.

Section iv. Six Fellows shall constitute a quorum, and be authorised to transact the ordinary business of the Society.

Section v. No amendment of this Constitution shall be made without the Fellow or Fellows proposing such amendment, present the same in writing to the Secretary, who shall read it to the Society; it shall then be referred to the President and Council, whose duty it shall be to examine into the expediency of such alteration, and report their proceedings to the Society at the next meeting. The amendment shall then be adopted or rejected; it being specially understood, that no amendment can be made without a concurrence of three-fourths of the Society.

[Adopted, August 8, 1817.]

NAMES OF THE FELLOWS.

VALENTINE MOTT, M.D. Professor of Surgery in the College of Physicians and Surgeons in the City of New-York, and Surgeon of the New-York Hospital.

JAMES C. BLISS, M.D.

JOSEPH M. SMITH, M.D.

ANSEL W. IVES, M.D.

DR. HENRY FISH.

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DR. GUY C. BAYLEY.

FRANCIS E. BERGER, M.D.

DR. PETER C. TAPPEN, Physician of the New-York Hospital.

ELIAS MARKS, M.D.

CHARLES DRAKE, M.D.

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THEODORIC ROMEYN BECK, M.D. Member of the New-York Historical Society, of the Antiquarian Society of Boston, and of the Academy of Natural Sciences of Philadelphia, *Albany, N. Y.*

Dr. JAMES GILBERT, *New-Haven, Conn.*

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Dr. STEPHEN W. WILLIAMS, Fellow of the Massachusetts Medical Society, and Fellow of the Vermont Second Medical Society, *Deerfield, Mass.*

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Dr. WILLIAM TULLY, *Middletown, Conn.*

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JOSEPH GALLUP, M.D. *Windsor, Vt.*

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Dr. SAMUEL BUEL, *Litchfield, Conn.*
Dr. P. R. ALLEN, President of the Medical Society of Indiana, *Paoli, Orange County, Indiana.*
Dr. SAMUEL WHITE, *Hudson, N. Y.*

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ANSEL W. IVES, M.D. *Corresponding Secretary.*

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DR. EDWARD FOST,
DR. HENRY FISH.

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CASPAR WISTAR EDDY, M.D.
VALENTINE MOTT, M.D.

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DR. GUY C. BAYLEY.

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ERRATA.

Page	55	line 29—for "limus" read litmus.
	123	6—insert to, after "appeared."
	129	15—insert a, before "half."
	136	24—for "Van Sweitan" read Van Swieten.
	151	10—for "an dissolute" read and a dissolute.
	195	1—insert coma for semicolon.
	244	4—for "case" read cases.
	272	23—for "τοθεῖον" read τὸ θεῖον.
	419	4—insert history of before "cases."
	424	31—insert in, after "energy."

INTRODUCTION.

A DISCOURSE

ON THE

SOPHISTICATION OF MEDICAL THEORY,

READ BEFORE THE

PHYSICO-MEDICAL SOCIETY.

BY ELIAS MARKS, M. D.
Fellow of the Society.

"ἡ ὃ τέχνη μακρὴ."—ΗΠΠ.

"To theorize is to reason;"—this position has frequently been repeated, and it is, in a definite degree, true; but are we, hence, to infer that *theory* is reason? Or rather—is not this *word* often wrongly defined, and carelessly applied? Is not *theory* oftentimes confounded with *hypothesis?** A theorem is an established truth; hypothesis, a mere supposition. Theory sets out from acknowledged data; hypothesis goes in quest of these data; thus, the latter terminates where the former begins. The follower of hypothesis, may be compared to the visionary, who rises from the perusal of his Plato, with the intention of immediately embarking for the fa-

* No more apt illustration of the difference between theory and hypothesis can be given than in the observation, that "In theorizing we frequently fall into hypothesis."

bled Atlantides. Proceeding from postulatory principles, his deductions are, of course, attended with uncertainty, or, however independently correct, are devoid of proof, and bring nothing home to the conviction. The true theorist, on the other hand, ascertains the meridian whence he departs;—his desire is not to create, but to discover; not to dazzle, but to convince; not to startle by conjecture, but to elucidate by fact; and although his reasonings may be inconclusive, or his deductions inconsequent, it is not to be inferred that these proceed from the fallacy of the means which he employs.

It is curious to observe, how every age is distinguished by some doctrine which arises from the ruins of the former. Opinion is mutable; it partakes of the beings with whom it originates. Truth is ever one and the same; and time, which overthrows the creations of error, gives stability to her structure. If the fallacies of the past appear to us more numerous than those of the present, it is not always to be inferred, that this arises from an intellectual advance on our part. The intervention of years, by placing such fallacies at a proper distance, enables us to view them more distinctly. Removed from the atmosphere of prejudice with which they were surrounded, we behold, and wonder at their anomalies; while we ourselves, enveloped perhaps, in a denser mist, embrace doctrines equally objectionable; which, in their turn, will experience the fate of those which have preceded them.

To enter upon the causes which have given rise to the various doctrines, as they have successively

occurred in medicine, would be to enumerate those of philosophy itself. They were the twins of antiquity, blended under the same godhead, and bearing nearly correspondent devices. What wonder, then, that their progress has been one and the same; and that the perfections and imperfections of the one, have been those of the other? In the followers of both, we have observed the same fondness for mysterious subtleties, the same boldness of assumption, and the same love of dogmatism and hypothesis.

Men of genius, in almost every age, have proceeded forward in their career of enquiry, possessed, as they deemed, of an infallible rule, by which they would test the genuineness of their discoveries. But it has, ludicrously enough, happened, that the moral Philosopher has frequently been armed with the gauge of science, and the scientific enquirer, with the casuistical standard of the former. Thus, sentiment has been applied to science, and demonstration to religion; faith has been required in the former, and free speculation allowed in the latter: The imaginary physics of Aristotle and Plato formed the orthodox ritual of the middle centuries,* while demonstrative theology constituted the rage of that which has just preceded us! The sophisms of pedantry and ignorance are of easy detection; they lie, as it were, on the surface, or at best, are entrenched by those pliant terms which hypothe-

* "An authority, (Aristotle's,) which for many years was scarcely inferior, in the schools, to that of the Scriptures; and which, in some universities, was supported by statutes, requiring the teachers to promise upon oath, that in their public lectures, they would follow no other guide." *Stewart's Hist. of Phil. Diss.* I. p. 37.

sis knows so well how to employ; but beneath the splendid veil which genius throws around his offspring, it is not easy to determine whether truth or error be enveloped. It was to the latter, tricked out in all the pleasing foppery of the schools, that ages have given their assent and reverence. At length a Verulam appeared: it was this master-spirit —this literary Sampson, who tore up the pillars which supported the fabric of false philosophy, and subverted in its ruins, the "time-honoured" prejudice of ages.

The *errors* of most of the obsolete medical doctrines, as well as of those which are still extant, or sinking beneath the horizon of their fame, may be traced to what may be considered the fundamental source of all the consequent aberrations, namely, *An inefficiency of observation and inquiry;* and this inefficiency may be ascribed to that impatience of investigation, which, too eager after results, confounds the contemplation of nature with a knowledge of her operations; and which, deeming its conclusions the *ne plus ultra* of enquiry, fastens its creed to the last link in the chain of ideas. Where this enquiry therefore, terminated, speculation commenced, and some principle was upheld which served as a nucleus to a future gigantic system: Or, the investigator, wholly dissatisfied with this appeal to observation and fact, rejected what HAD appealed to his senses, and reverted to abstract reasonings alone. It was thus, from consulting principles, instead of persevering in enquiry, that the various theories which have at different times been ascendant, have so long maintained their res-

pective empires. We have often seen how one simple discovery has dispelled into air most of these pleasing sophisms; and even at this day, we are not to consider medicine as wholly freed of them; they germinate in every age, and are the product of every soil.

It would be unnecessary, here, to designate the various systems, as they have successively arisen, with their distinguishing tenets—their excellencies and defects; such things constitute the catechism of every student, and a review of them will enforce the conviction that it is with science, as with letters—diffusion and depth of research are frequently opposed to each other. The multiplicity of authors, the variety of dubious doctrines, and the contradictory opinions with which medicine abounds, while they ostensibly appear to have added to the resources of the student, have virtually abstracted from them, by rendering him dependent, wavering, and indecisive, and by causing him to substitute precedent for observation.

The infancy of genuine medicine, unlike that of the other sciences, gave indications of strength which renders it, even amidst an era of philosophical ignorance, venerable and respected. True, the age of Hippocrates was the age of poetry, and eloquence, and the arts—it was the golden day of Greece, when flourished a Socrates, a Xenophon, a Plato and an Isocrates. But, as it was deficient in a pure and dignified morality, and in the lesser virtues and gentler arts of life; so was it, measurably, wanting in those sciences which have given to

medicine, and physics in general, their present ascendency. To the votary of antiquity, who early imbued with a veneration for the illustrious dead, deems it profanation to call their authority in question, these observations may appear to savour of temerity. But he who would admire the wisdom of the ancients, must look for it in their ethical, rather than in their natural philosophy. In the former is reflected the integral beauty of their authors' lives; while their claims to the latter, rest, for the most part, on dogmatical assumption or fanciful supposition. But in Hippocrates we behold one whose greatness was as solid as it was brilliant; whose life was a blessing to his country and age, and whose writings have endeared him to posterity. He was truly a daring and a happy genius. Arising amidst an age of medical ignorance, the profoundness of his observations appeared not the effects of inquiry but of intuition. His errors and his superstitions belonged to the age in which he lived; they were the tares which he gathered with the wheat, and which adhered too closely to the folds of his garment to be shook off. It will be perceived that we allude to the pathological views of Hippocrates; it is on these that his claims to immortality rest; most of them have served as so many perennial springs from which succeeding writers have filled and refreshed themselves. What Homer is among poets, Hippocrates is among physicians—they both have profoundly studied man and have described him such as he is at this day, and will be found in all succeeding times.

With Hippocrates the *science* of medicine arose and declined. For centuries after him, it deserves to be considered rather as an *art*, where ingenuity sought a means of amusing itself in deceiving others. Observation gradually yeilded to abstract reasonings and presumptive principles. Here commenced the era of *mystical medicine*, and the reign of *scholastic philosophy*. Two sectaries in physic arose in opposition to each other; the followers of the Aristotelian doctrine, termed *Methodists*, and those, fraught with the scepticism of Pyrrho, denominated *Empirics*. As the first depended on ideas alone without consulting fact; so the latter were, in the main, content with fact, without having recourse to reasoning or deduction; or, if they resorted to speculation, it was that speculation which stood isolated in itself, and which had no connection either with observation or practice. What is, therefore, termed Empiricism, was, originally, not so much fallacious from the *adoption* of any one peculiar opinion, as from the *negation* of all; whereas the Methodistical sect substituted their *ideas* of things for the inherent *properties* of things. They reasoned thus: As many of the results of the animal economy are not cognizable to the senses, and as their causes and intermediate operations are still less so, how are we to proceed to their investigation? for, here, as experiment can attain no positive result, neither can reasoning find any *data* from which to set out.—Here, then, is the maze in which so many have bewildered themselves. Satisfied with no-

thing less than demonstration, they rejected a part because they were unable to arrive at the whole, and the path of patient investigation was abandoned for the more pleasing wilds of fanciful speculation.

Setting out, therefore, anew, from the Platonic principle, *that all knowledge is innate*, and that this knowledge consists in certain immutable ideas of the soul, which ideas are the signs or archetypes of things, they readily accounted for all phenomena which they encountered, and drew, *ad libitem*, on the exhaustless resources of their own minds. An author has observed "that when men once renounce the evidence of their senses, either in believing or doubting, there is nothing which they may not believe or doubt with perfect consistency." We are not, therefore, to be surprised that with this assumption of insulated principles, analogical reasonings were adopted, wherein similar effects were traced between things compared, and therefore, similar causes inferred; or, proceeding somewhat conversely, their *modus operandi* were explained by some analogy, real or supposed, in their respective causes. Hence, in succession, emanated the humourous fictions of the Cartesians, and the doctrines of Sanctorius, Borelli, Homberg, Quincy, and Keil. These, for the most part, disdaining the advantages which retrospective reasonings afforded, commenced from what is termed reasoning *à priori*. This species of ratiocination found many advocates among those who, of an aspiring, yet

impatient genius, disdained the slow and doubtful advances which *enquiry* afforded. But, if this self-poized structure be well examined, it will, in most instances be found, to use the figure of a poet,

> " ———————— like an inverted cone,
> Wanting its proper base to rest upon."

Reasonings à priori are often mere deductions of the closet, inversely presented to the understanding of others, and brought forward as pure abstractions, which have proceeded from the author's brain, like Minerva from the head of Jove. In fact, although results, by a process of induction, may be referred to probable causes, as in *reasonings à posteriori;* yet, it is difficult to conceive, how an acquaintaince with the animal organization can lead, *à priori*, to a knowledge of its functions. Has the structure of the heart or kidneys any thing correspondent with the actions they are destined to perform, any more than the form or substance of the pineal gland, can be proved to have any thing analagous to the nature of the soul!* The age of mechanical medicine is long since gone by, and with it, the obscure jargon of *parallels*, *angles*, *rectangles*, and *percussions!*

But it will not, we trust, be inferred, that we herein disclaim the exercise of a just and rational theory;—we mean *that theory* which, setting forward from established data, employs induction as

* Descartes fancifully assigned this gland as the *nidus* of the soul.

a means, and has conviction for its object; what we would deprecate is that illusive speculation whose aim is not *truth*, but *dominion*. The former we consider as the wings of knowledge, whose flight, although sometimes eccentric, has often, like the eagle's, been directed towards the source of light. But, it is only when induction fails, that we would have recourse to hypothesis; the stately march of the former, is to be preferred to all the graceful movements of the latter; and we would accompany the flight of the one, when no longer able to trace the footsteps of the other. It was induction, resulting from observation, which gave us all which is most important in the science of medicine; and we must feel humbled at the recollection, that it *is not* to demonstrations à priori that we are indebted for most of the means which the healing art employs. It was by induction that Harvey arrived at the knowledge of the circulation of the blood, and that Jenner was enabled to arrest the scourge of nations, and the opprobrium of the healing art.

Science has *fact* and not conjecture for its base; and *that science* whose object is, not the arriving at some abstract conclusion or curious result, but whose end and aim, involves the lives and happiness of mankind—*that science* should be built on the immutable foundation of truth alone. But, it unfortunately happens, as we have elsewhere observed, that in our quest of knowledge, the means are frequently substituted for the end; the pursuit is often confounded with the attainment of the ob-

ject. Every passionate theorist is an enthusiast—a literary Quixotte, who perceives his mistress every where, because ever present in his imagination. It frequently happens, that the same person, who, at the commencement of his medical career, evinces all the austerity and inflexible *directness* of the logician, becomes, in the end, the most pliant of sophists, and gradually divesting himself of his Spartan simplicity, assumes all the gaudy luxury of the Persian robe. He then finds it much easier to erect a standard of his own, around which he would summon the objects of his search, than by a gradual and almost imperceptible advance, follow the slow gradations of enquiry. In the former he grasps systems; in the latter, he deems that he catches only at atoms, which are incessantly eluding his hold. What wonder then, that like the Macedonian, he wishes for a short road to Science, and even goes beyond him, in deeming he has found it: for all

> "———— Philosophers, who find
> Some favourite system in their mind,
> In every point to make it fit,
> Will force all nature to submit."

In opposition to the above are the followers of *medical prescription*. As there is no opinion or system, however absurd, which cannot find support and countenance in the authority of some great name; and as it is much easier to assent to the

reasoning of others, than reason ourselves—so there will always be found those who are ready to maintain the most dangerous ground, provided, when hard pressed, they can seek shelter beneath the academy or porch. It is related of Silvius, a zealous disciple of Galen, and the preceptor of the celebrated anatomist Vesalius, (though fterwards his decided enemy,) that when confounded by the demonstrative proofs of his pupil, rather than doubt the infallibility of Galen, he asserted "That men were otherwise made in the days of Galen, than in the time of Vesalius." It is to these adherents of the *black-letter*, these zealots of medical prescription, that may be ascribed the many oppositions which have retarded the march of medical improvement. These are the sectaries of medicine—beings so wedded to established doctrine, as to be unmoved even by demonstration itself, and who regard a secession from professional faith as the worst of heresy. In their writings, we are often called to witness a grotesque assemblage of facts, arguments, and authorities, so intimately interwoven, and blended withal, as to defy the subtlety of analysis itself; while the reasonings adduced, like so many props against a mouldering building, tend to show the weakness of the edifice.

Speculative eccentricity may be rendered somewhat venial from its combination with superior talent. It is, indeed, often characteristic of genius, and denotes the soil whence it springs.

" Offendar maculis, quas aut incuria fudit,
Aut humana parùm cavit natura?*

But, when we turn to the writings of a Boerhaave, a Cullen, and a Rush, we look for their greatness—not in the glare and splendour of their respective theories; not in the originality of their opinions, or the hardihood of their assumptions—but in their profound and judicious observation; their extensive practical science; their indefatigable and successful research, and the important results which are adduced. It is from an inability of making this distinction between true and factitious *greatness*, that the *medical sophist*, assuming the attitude of the sage, first deceives himself, and then sets about deceiving others. Emulous of that *greatness* to which he aspires, without assimilating, he imagines he is embodying its very essence, when he is only mimicking its *gestures*. Now, compare this ingenious shuffler of technicals —this skilful framer of crude and incomprehensible doctrines, with the modest enquirer after truth; patient, diffident, observant, and deliberative. He seeks not with a self-complacent philosophy, how he may best display his hardihood, by captious denial, or invidious objection; he aims not to marshal the immensity of things by the unerring standard of his own infallible judgment; nor does he sit, invested in the mantle of infallibility, to thunder forth his *physical dogmas* over the heads of

* Horat: De Arte Poetic.

trembling, passive disciples. No, he goes forth in the nakedness and simplicity of truth; and if, for once, he adventures beyond the precincts of fact, into the alluring fields of speculation, it is with the trembling consciousness, that he is no longer possessed of the chart or compass for his guidance.

Yet, howsoever the speculations of genius may amuse in the closet; howsoever its scientific deductions, its fanciful analogies, may there fasten on the mind, and hold it in durance; yet, at the bed-side of the patient, Science stoops, and becomes an auxiliar of observation. The physician, here, acts not from reasoning a priori—he reverts to the past; he observes the present; he calculates the future. The pomp of system and the splendour of hypothesis are laid aside. Called to the most responsible of posts, he feels that *his* is a duty for whose acquittance, he is most solemnly and awfully accountable. It is not merely fortune and character which he advances in the contest; it is that eternal peace of conscience, that approval of spirit, which is far dearer to him than either; it is not the issue, but the motive, for which he will stand adjudged; and while, with patient faculties, joined to a meek and attentive wisdom, and a sympathising humanity, he stands a ministering being at the sick man's couch; *his* is an attitude, the most dignified in the estimation of man—the most grateful in the eye of Deity!

And, here, may we be allowed to observe, that in submitting this Discourse to the society, of which

we have the honour of being a member, we feel an assurance of its concurrence with the sentiments which it contains, in as much as these sentiments are illustrated, and, as it were, embodied in the various luminous and scientific views which characterize its researches. Avoiding peculiar doctrine, and exclusive system, the *Physico-Medical Society* has directed its aim to those fundamental truths, on which the interest, and importance of medicine are chiefly founded; aware that science like the Doric column, should stand simple, pure, and majestic, having fact for its base, induction for its pillar, and truth alone for its capital.

Impressed with this conviction, and proceeding upon such principles, will it be thought assumptive that we indulge in that enthusiastic anticipation which science has so often deigned the aspirations of her votaries? Nurtured by the combined and ardent zeal of its respective members, shall we not look forward to a period, not very distant, when this embryon of science—this infant germ, planted and cultured by a devoted few, shall have taken a deeper and a firmer root; shall gladden with its umbrage, those by whom it was originally planted, and dispense occasional shade and shelter, to the transient sojourner, in his passage through a rough and precarious existence?

REMARKS

ON THE

SPOTTED FEVER,

AS IT PREVAILED IN HARTFORD, CONNECTICUT,

IN THE YEAR 1809.

BY

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Fellow of the Society.

Read the 3d of September, 1815.

The subject of the following remarks, is a peculiar disease, which has been denominated Spotted Fever. It is described as it appeared in Hartford, Connecticut, in the winter and spring of 1809. The treatment is that which was adopted and found successful by the physicians most conversant with it; a treatment which has been approved and ultimately resorted to wherever this formidable malady has appeared. The facts related occurred to the writer's own observation, or were suggested by those, who were themselves eye witnesses. The name by which this disease has been known, is incorrect; because, strictly speaking, it is not a fever, and it is rarely attended with petechiæ, or spots. I shall use it, however, knowing no other by which to designate the complaint.

It is a popular name, and as far as I know, the one most generally used.

Before describing the *Spotted Fever*, it will be proper to notice the weather and diseases which immediately preceded it. I do not know that the former had any decided effect in exciting this epidemic; but there is a connexion between the weather and diseases, and it is only by long continued records of facts, relating to these points, that this connexion can be successfully and usefully unfolded. The winter of 1808–9 was unusually severe. The cold weather commenced earlier, and continued longer, than in the six or eight years preceding. The snow fell in December, in large quantities, and was not wholly removed until late in March. It was generally a foot or more in depth, and the air was intensely and uniformly cold. Snow storms were frequent and severe, without being succeeded by thaws.

The diseases of the summer and autumn of 1808, had been noticed as uncommon in two particulars: first, for the slight evacuations which were necessary to remove them; and secondly, for the comparatively large quantities of medicines necessary to produce these evacuations; whether they were to operate as emetics or cathartics. For two or three preceding years, it had been a common remark amongst the physicians of Hartford and its vicinity, that the diathesis of their diseases was changing; that instead of inflammatory diseases, which were almost universal, all, without exception,

had assumed more or less of a typhoid character. Hence, many who had been accustomed to bleed at regular periods, and who suffered when it was neglected, had omitted this evacuation with safety; or if they persisted in it, had found it injurious. Hence, too, purely inflammatory affections, both general and local, had become rare: indeed, they were scarcely met with. From this cause, too, it was, that injuries of the body from blows, &c. which, for years before, had been invariably followed by active inflammation, requiring, for its removal, free evacuations and cold applications, were in danger of becoming gangrenous, from passive inflammation, or a want of sufficient action in the vessels of the affected part, and required, for their cure, a liberal use of local and general stimulants.

Typhus fever, pneumonia typhodes and catarrh, preceded this epidemic, and were attended with the peculiarities already mentioned. The first of these prevailed more this season, and was attended with more debility, than is common. There were several cases of it immediately preceding the Spotted Fever; a number of which proved fatal in a shorter period than usual, under the ordinary treatment; and in these cases there was less morbid matter in the alimentary canal, and fewer evacuations were required, than in typhus, as it usually appears.

Pneumonia was not so common as it had been in cold seasons; and the cases of it, which occurred, were not so inflammatory as in other winters,

and under similar circumstances. Pneumonia typhodes was more common than usual, and attended with symptoms which showed extreme debility and proved the inflammation to be rather passive. In no instance was more than one bleeding required to remove it, and even that was generally unnecessary. An emetic and cathartic, at the commencement, with a free use of calomel, opium, and wine, in the latter stages, were relied on for the cure, and found effectual.

Catarrhs were not more prevalent than in former winters, and only deserve notice, as they were not so often attended with fever, and required only mild evacuations for their removal. With such precursors, this epidemic appeared: the first cases occurred the last week in January; after which it spread rapidly in different parts of the town. In the first instance, it assumed such symptoms as unequivocally marked the complaint to be Spotted Fever, and appeared totally unconnected with any other disease. These symptoms, as they appeared independent of the effect of medicine, will now be enumerated. Those which may be termed pathognomonic, as they serve to distinguish this from all other diseases, will be noticed hereafter. Although it was not difficult, in the first cases, to distinguish this from other diseases, yet it is not to be inferred, that the minor symptoms were in every case alike. On the contrary, they were very dissimilar; the characteristic marks of the disease, however, rarely varied. In the subsequent enumeration, I will ad-

here, as closely as the subject allows, to the course they followed in the majority of cases; considerable deviations from this course will be noticed.

The Spotted Fever, with a few exceptions, attacked with a chill. The cold sensations were frequently first perceived at the stomach; but in a few minutes they became general. They were often so intense, as to produce a shivering and chattering of the teeth, as in intermittent fever. In the cases where the chill was the most violent, the patients seldom complained of cold, even while they were shivering; but the skin was always cool to the hand of a person in health. The duration of the chill varied in different persons and under different circumstances; where no means were used to check it, it was rarely, if ever, followed by preternatural heat in any part of the system. Whenever flashes of heat succeeded the chill, they were very slight and transitory; continuing but for a short time, and leaving the patient in extreme debility. The temperature of the body, during the chill, was always below the healthy standard; the diminution of heat was perceptible in every part of the system; the skin was cool, sometimes shrivelled, and in many cases, drier than in health.

The chill was, in most cases, accompanied with, or soon succeeded by, pungent and excruciating pain in some part of the body; as in one of the extremities, the back, stomach or head. Sometimes sharp and agonizing pains were the first warnings of disease, attacking the head or extremities. Generally, when it was first felt in a limb, it proceed-

ed along to the head. The spot complained of, as the seat of pain, was sometimes no larger than a cent; but it had no diseased appearance. These pains were scarcely ever described by the patients, as dull or heavy, but, sharp and lancinating; and in most cases moving from one part of the body to another. The bowels were exempted from pain. I do not remember a single instance where this part was complained of.

Pain was often complained of under the ensiform cartilage: on a closer examination, it was evidently not pain, but distress, having its seat in the stomach. This affection of the stomach is not easily described: patients themselves said they wanted words to express their feelings. Some called it a faintness; some a coldness; others a deadly feeling, of which they could give no distinct account. All agreed in representing it as very distressing; and where it had been removed, dreaded its return. This affection varied, in its duration, in different cases: in some it did not return after being removed, but generally continued, in some degree, through the disease; sometimes recurring at regular periods, or in paroxyms during the day, and bringing with it a countenance expressive of a degree of distress and horror that can scarcely be conceived.

The stomach was otherwise severely affected; nausea and vomiting were general, and in most cases violent. Generally, if no application had been made to check the chill, puking succeeded in a few hours; and nearly every case, in some of

its stages, was attended by vomiting. In a few instances, it was the first symptom that indicated disease, and in these, it was generally followed by a chill. The matter discharged from the stomach, in either instance, had no morbid appearance; nor differing in quantity or quality, from the matter ejected from a healthy stomach. There was no bile or mucus discharged by vomiting, whether it was spontaneous, or excited by art.

The respiration did not generally vary much from that in health; in some, during the chill, or when the pain was very severe, it was short and laborious; in others it was observed to be extremely quiet and placid. The respiration, in the later stages of the disease, will be noticed in its proper place.

The tongue varied much in its appearance, both on the attack and during the progress of the disease. In some violent cases, it was smooth, dry, pallid, shrivelled, and almost of a livid hue. When the tongue had this appearance, where the circulation was very imperfect, and great danger was justly apprehended, it obtained the expressive epithet *bloodless*. In other cases, it hardly varied from a healthy state, except in being dry; in some it was moist, but soon became dry. It never had on it any fur or mucus, as in our common typhus fever; but during the progress of the disease, it was covered with a dark coloured slimy matter, in some dry, in others moist; having the appearance of molasses. In some a black stripe ran longitudi-

nally upon the tongue, but never entirely covered it. Frequently it became dry and shrivelled, denoting a change for the worse. The bloodless tongue was almost always a fatal symptom. Patients sometimes lost the power of moving this organ in a few hours from the attack: the muscles attached to it appearing to be paralytic.

The pulse was always extremely weak, feeble and depressed: in most cases more frequent than in health; in others it was imperceptible on the attack, and for one or two hours, till it was restored by stimulants. There was not, before or after the chill, any increase of arterial action; on the contrary, where the disease was left to its own course, the pulse grew more and more feeble until death took place. In some instances, though rarely, it was observed that the pulse, in fulness and frequency, did not vary from a healthy state; but in all these it yielded to the slighest pressure. The pulsation of the carotid artery was sometimes perceptible at some distance; and though frequent and full, yet like the radial, yielded on slight pressure.

Two patients, the last winter, were bled: one furiously delirious, the other comatose: in neither of these did the blood present any uncommon appearance. There was no inflammatory buff, nor was it dissolved. In one case in 1807, where the eyes were suffused, it had a slight buffy appearance; in another, the following year, it was darker, and had a larger proportion of serum than usual. The two last mentioned cases proved fatal in a few hours af-

ter the patients were bled. Hæmorrhagies this winter were rare, although they were frequent in former epidemics. Epistaxes sometimes happened: in one case, there was a hæmorrhage from the fauces; the blood was discharged in small quantities, and during sleep. In another case, there was a hæmorrhage from the stomach, and the patient evidently sunk under the discharge. The strength of the patient, from the moment of attack, was completely prostrated. The debility of the muscles was astonishing, and formed a striking feature of the disease; for it took place without previous excitement, or debilitating evacuations. In some, a faintness and prostration were the first symptoms that excited the attention of the patient, who found himself unable to raise his hand, before he was sensible of being ill; in others, but very rarely, a lassitude or unwillingness to motion preceded the chill. In a few cases, where it commenced with a furious delirium, there was an apparent increase of strength in the muscles of voluntary motion; but this morbid excitement, in an hour or two, gave place to extreme weakness. In either case, the pulse was weak and feeble, and in some, where this morbid strength existed, it was fluttering.

The eyes were sometimes natural: generally they had a wild and vacant stare, sometimes accompanied with a glassy appearance, at others with a dilatation of the pupils. In some, where the attack was violent, the eyes were very brilliant, and there was a rapid transition from a complete dila-

tation to such a contraction, that the pupil was nearly obliterated. In some cases, this alternate contraction and dilatation continued for an hour or two, when it disappeared; being succeeded by a more natural state of the eye, or permanent dilatation, with coma. In many instances, the eyes were suffused with blood, and had every appearance of excessive inflammation: they were never yellow.

There were few, if any cases, where delirium, in some form or other, was not present in the course of the disease. It varied much in the time of its accession: in some, it commenced on the attack; in others, on the second, third or fourth day; generally continuing until convalescence or death followed; occasionally, however, intermitting for a day or two. When it ushered in the disease, the delirium was generally furious, or raving; the patient being completely distracted, and complaining of excruciating pain passing through his head. Not unfrequently, such patients were without sleep for a week, and obstinately refused food, or medicine. When delirium began at a later period, as it did in most cases, it was more mild, sometimes of a playful kind; the patient being sociable and humorous. There was a great variation in the feelings or spirits of many patients; sometimes being much elated, but more generally depressed.

In females, above seventeen years of age, the spotted fever often disguised itself under the form of hysteria; attacking with such symptoms as globus hystericus, crying or laughing, "without visi-

ble occasion," sighing, or wringing of the hands; generally, these symptoms were accompanied by others, from which a diagnosis was not difficult. But when this variety first appeared, there were cases, in which the patients were supposed to have nothing but hysteria, until they had sunk beyond the reach of medicine. These patients, when delirious, were talkative and jocose: from their actions and expressions, they appeared to be completely happy; and, though convinced that their cases were hopeless, showed no fear of death, nor any desire to recover; some seemed resolved on dying from the first, and became impatient when attempts were made to encourage them with hopes of recovery. There was much variation in the continuance and degree of these symptoms; generally when they were present, they began with the disease and continued through its progress. The state of the pulse did not vary from that in other cases, of equal violence.

In many cases of this epidemic, there was a peculiar affection of the urinary bladder—a difficulty and pain in discharging urine; and it was seated in the neck of the bladder. There was a frequent disposition to void urine, when there was none collected; or if the bladder was filled, emptying it gave exquisite pain. This might have been attributed to the operation of cantharides, had it not frequently occurred, where none had been used. In some cases, the secretion of urine was diminished, but without pain around the kidneys: in a few instances,

in which there were symptoms of hysteria; the urine at first, was paler than usual; in all others, it had a natural colour. The appetite was always impaired, especially on the attack and during the violence of the complaint; but, as soon as the patient had passed these stages, it returned, and the stomach recovered its digestive powers. It is believed, it did this in a shorter time than in most other diseases; for it was uncommon to find a patient oppressed by a full meal of animal food, even while they were unable to sit up.

That there was an irritable state of the stomach, and that the matter discharged had no morbid appearance, has already been noticed. The intestines were not disordered, except from torpor. They were not loaded with vitiated secretions of bile, or mucus: the evacuations were always natural, whether spontaneous or artificial. No morbid matter, whether bile, mucus, or indigested sordes, ever followed the operation of an emetic or cathartic, at the commencement or in the progress of any case of spotted fever. In a few cases, just before death, there was an involuntary evacuation of fæces.

The catamenia, if present on the attack, immediately ceased. This cessation was not followed with any of the usual symptoms of suppressed menstruation.

Some patients complained of a sore throat, which, on examination, presented the same appearance as in cynanche maligna, except the swelling of the tonsils. In some cases, the throat was ulcerated on

the attack: this part also, was sometimes first complained of; and when in this situation, there were ulcerations, the disease was violent, if not fatal.

In almost every case, the sense of feeling was greatly impaired, if not wholly lost. In some instances, a general numbness was the first symptom complained of; for, though the patient's skin was cool, yet he was insensible of a diminished temperature. The numbness was generally first felt in the extremities, though sometimes in the face. When the arm or leg was first affected, the patients would exclaim, "that they had none, or that they had lost it:" when the attack was in the face, they were constantly rubbing it: sometimes in the extremities, it amounted to a complete paralysis. In the face it was so severe and distressing, that they expressed their sensations by saying, "there was an iron mask drawn over it to the bone." The skin was often so insensible, that the most irritating applications produced no effect; cantharides, nitrate of silver, and the actual cautery were repeatedly applied in one case, without raising a blister or giving pain; in another, a pin ran under the nail of the great toe was not felt. It was always, as may readily be perceived from this statement, very difficult to excite a sweat, or preserve a moist skin, after it had been procured.

In a few instances, blindness was the first deviation from health, noticed by the patient or his friends, and this was generally followed by raving delirium. When the numbness was extreme, blind-

ness, with dilated pupils, sometimes succeeded in a few hours. In some cases, vision was restored in a few hours; in others, it was more or less impaired for several days; but it is not known that the sight was ever permanently injured by this disease. While the senses of feeling and seeing were thus totally lost or much impaired, that of taste was similarly affected; very hot liquids being always required to make any impression on the tongue. In some, this obtained to such an extent, that brandy could not be distinguished from water.

The hearing and smelling were natural. There have been instances, where patients when recovering, lost their hearing, without any perceptible injury about the ear.

There was often a melancholy tone in the voice on the attack, and during the progress of the disease.

The breath on the attack, generally, was not fœtid; but to this, there were some exceptions: in many cases, at some stage of the complaint, the breath was offensive, particularly during the coma; but had the fœtor of ordinary fevers.

Aphthæ were general, they were dark and heavy, spreading over the gums and fauces; in mild cases, of a whitish or lighter colour than in those which were more violent.

Deglutition was often much impaired; in the most violent cases, it was sometimes lost in a few hours: in some cases it appeared to be spasmodic.

but in most, it arose from the loss of power in the muscles attached to the pharynx.

In all fatal cases, the patients, before death, became comatose. Although the disease terminated in this manner, it is not to be understood, that coma was always a fatal symptom; on the contrary, many have recovered from this state, when apparently the powers of life were nearly extinguished. It was common for patients to be lethargic, and frequently difficult to rouse them. Some became comatose in a few hours from the attack; others not until the third, fourth, fifth or sixth day. The appearance of this symptom varied according to the violence of the attack and the remedies that had been employed. Before it began, the vomiting was incessant: whatever drinks were taken, were very soon rejected; the stronger stimulants, however, remaining on the stomach longer than the weaker. To this succeeded a strong disposition to sleep, with a slight rattling in the breathing: the difficulty of rousing them now increased fast, and they soon became insensible to the loudest noises, and all efforts to awaken them.

At this period, the eyes were closed, and of a glassy shining appearance. The pupil was often dilated, and insensible to the strongest light. If there had been any suffusion of blood in the eyes on the attack, it had now disappeared. Sometimes the skin was of a natural temperature, but more generally, it was below it, and not more moist than in health: in some places, as on the forehead or breast, it was

œdematous. The mouth, with one exception, was always open, and the gums and fauces loaded with dark coloured aphthæ, except in one case, and in that the tongue was moist, but pale and shrivelled. The respiration generally was short and laborious, with a rattling noise, or an apoplectic stertor: just before death, in a few cases, it did not vary materially from health.

Singultus was observed in some instances, but not generally. The pulse, at this stage, was always extremely weak and feeble, and sometimes quick: in some, it had the apparent fulness, that has been mentioned, but yielded on very slight pressure. In this state, the patient sometimes continued for six, eight, or twelve hours, when he expired without a struggle.

Petechiæ, or livid spots, from which the spotted fever has derived its name, did not occur in one case of this epidemic before death: after it, they were noticed in several. In 1807, when the spotted fever first appeared in Hartford, there were but few cases without them: in the following year, they were less common, and since then, they have not been seen in that place, before death. Their size, time of appearance and continuance, have been various; I have seen them as large as a dime, in twelve or fourteen hours from the attack, but generally, they were smaller—about the size of a half pea, and of a livid or deep black colour. They consisted of extravasated blood. I have seen some cases with petechiæ, and an eruption or efflores-

cence, resembling that of scarlatina; the red spots forming the eruption, receded on pressure, while the livid would not: they have also been frequently opened, when extravasated blood was discharged. The petechiæ appeared sometimes on the neck and breast, sometimes they were confined to the extremities, and in other cases, they were spread over the whole body.

The lymphatic and glandular systems were not particularly affected. Carbuncles were observed in a few patients, but not until they were convalescent: some were filled with a yellowish matter, while others disappeared without suppurating. In some of the towns around Hartford, where the spotted fever has prevailed, carbuncles and buboes in its first stages, have been frequent; and in Springfield, Massachusetts, there were several cases, with an eruption in the latter stages, similar to that of variola.

In some cases, where the attack was sudden and violent, the symptoms, at the expiration of twenty-four hours, were aggravated; and in one case, this exacerbation regularly returned till the patient was convalescent: it was then succeeded by a tickling sensation, which recurred at the same hour; beginning at the feet, and gradually extending to the head. One patient only had an inflammatory or painful affection of the joints, and that not till he had nearly recovered.

One patient, while ill with the spotted fever, was delivered of a healthy child, after a natural labour;

she recovered after a very severe affection, under the ordinary treatment.

The progress of the spotted fever has generally been very rapid: the disease always arriving at its height in one or two days; and in some instances, in three hours. Such cases, however, were rare, patients generally surviving the attack from one to three days; and there have been instances of their living ten or twelve days, and then sinking under the disease. In this epidemic, death took place, at different periods, between eighteen hours and seven days. There were no particular symptoms, which showed a crisis was about to take place, or which marked the period when convalescence began; for some were evidently better in a few hours, and recovered very rapidly; while in others, there was no material alteration for three, four, or five days, and in such, convalescence was generally slow.

DIAGNOSIS.

From this description of the Spotted Fever, it is evident, that there was some variety in its appearance, especially in some of the minor symptoms, and also in the manner of its attack. This has been the case wherever it has prevailed; but in all the epidemics of this disease, there were symptoms or combinations of them, by which it might without difficulty, be distinguished from all other diseases.

These are, the intense cold, which was never succeeded by any permanent increase of heat; the pungent and excruciating pain; the entire prostra-

tion of strength, without previous excitement, or debilitating evacuations; the clean or dry, pallid and shrivelled tongue; the weak, feeble, and in some cases, imperceptible pulse, neither preceded nor followed by any increased action; the raving, or mild and playful delirium; the hysteria, independent of any usual cause; the impaired external senses; the exemption of the alimentary canal from disease; the profound coma and apoplectic stertor, all agree to distinguish this from other diseases, and mark it as hitherto unknown.

The cynanche maligna and typhus fever, are, I believe, the diseases most liable to be taken for it. In the first, a mistake might not be of great consequence, but in the latter, it might prove fatal to the patient. The temperature of the skin, the exemption of the tonsils from swelling, the absence of efflorescence, the numbness, the appearances of the tongue, and the healthy state of the alimentary canal, point out the difference between spotted fever and cynanche maligna.

There is little or no resemblance between spotted and typhus fevers, except in mild cases of the former; and in these, the character of the disease may easily be discovered by the pulse, the temperature, the appearance of the tongue, the impaired external senses, the excretions, the delirium, and the state of the skin.

In typhus, we have an increase of arterial action, a foul tongue, bitter taste in the mouth, and loss of appetite, clearly indicating a disordered stomach. The intestines also are deranged; the excretions

are altered in quality, or quantity; the temperature is increased and the skin hot and dry; in short, between almost every symptom of the two diseases, when they are carefully compared, there will be found a material difference.

CAUSES.

So little is known respecting the causes of Spotted Fever, that in treating of them, it will be impossible to follow the division usually made of the causes of disease, any further than as it relates to the proximate and remote; and even on these, I have but little to offer that is satisfactory. It is necessary, however, to speak of them, if it is only to acknowledge that the subject has hitherto eluded investigation: indeed, I do not know that any thing can be assigned as a proximate cause, which is adequate to the effect. Dissections have been made, but they have served only to point out the parts principally affected.

When the Spotted Fever first appeared in Hartford, persons of all ages, from sixty and upwards, were seized by it; yet, as children from two to ten years, the young under and about the age of puberty, women, and enfeebled constitutions, were more frequently attacked than strong robust adults, and those in full health, it appears that the remote causes are such as induce debility.

Among these, are fatigue, especially from watching, anxiety, intemperance, and the debilitating passions. Fear, and profuse evacuations, sometimes excited the Spotted Fever, and sometimes

predisposed the body to receive it by infection; for there are facts which go to prove that it is infectious. It is not to be inferred, however, that all, or a greater part, of those who had this disease, received it by infection: on the contrary, many who were ill with it, were not, as is known, exposed to receive it in this manner. It is not known that the infection was ever preserved, or conveyed by bedding or clothes; and there are many facts which warrant us to believe, that it is not more infectious than the common typhus, or autumnal fevers of our country. Whenever it has prevailed in Hartford, it has appeared in the same, or near that part of the city, where it did at first, and thence spread in different directions. There are many houses, in which it has appeared twice, and in some three times, with an interval of a year or six months between its visits. And while these families have been thus successively its subjects, neighbouring ones have been wholly exempt; although there is nothing peculiar in the situation, habits of life, or diet, which can be supposed sufficient to produce this difference. Both in this, and in other places, a number of patients have recovered from a second attack. Negroes have not been exempted from this disease. The Spotted Fever has not confined itself to towns of a particular size or situation, nor to those which are considered as unhealthy. It has raged with the same violence and malignity in small villages, as in populous towns. There is nothing peculiar in Hartford and Litchfield counties, where it has extensively prevailed, which could be

imagined sufficient to produce it. Hartford has been as healthy, if not more so, than other places containing an equal number of inhabitants. And many of the towns in Litchfield county, which have been visited by it, occupy bleak and elevated ridges, equally noted for being the most healthy, as well as the coldest places in the state.

It has generally prevailed more in the winter and spring, than in other seasons; yet it has appeared, with nearly the same violence, every month in the year. The last cases of the epidemic have uniformly been more mild than the first; and in very warm seasons, a few of them have been slightly bilious.

It has been suggested, and I think with much probability, that the Spotted Fever is seated in the brain and nerves.

When the delirium, the coma, the state of the external senses, and the extreme prostration of strength, which constitute an essential part of this disease, are considered, this opinion is rendered probable; and it gains additional strength from the appearances of five dissections, as recorded in the Medical and Agricultural Register, for 1806. Unequal excitement of the brain, is said to be the cause of delirium; and coma, as appears from these dissections, arose from pressure upon the same organ. We call apoplexy and palsy, diseases of the brain and nervous system, from the effects produced on the senses, particularly from the loss of voluntary motion, and the sense of feeling. There are the same, if not more forcible reasons, for

placing this in the same class; which, though not conclusive, almost establish the opinion which has been mentioned.

PROGNOSIS.

The danger in Spotted Fever, arose principally from the loss of action in the arterial system, and the inability of the stomach to retain the necessary medicines. The greater, therefore, the depression of the pulse, and the more obstinate the vomiting, or, if it had not already occurred, the greater the disposition to it, the more dangerous was the case. But a prognosis should not be formed from these alone: the other symptoms deserve attention, together with the probable effect, which medicine will have on the disease. If, therefore, the pulse be not much depressed; if the muscles of the tongue and deglutition obey the will; if the external senses be not much impaired; if neither delirium nor vomiting have come on; or, if the latter occur and be checked by stimuli, and the pulse and heat increase by their application; if the throat be not sore, nor the tongue bloodless, it is probable, although the case be violent and obstinate, that the patient, with proper attendance, will recover. On the other hand, if the pulse be imperceptible, or appear full, and recede on the slightest pressure; if the muscles of the tongue and deglutition be palsied, or contract with difficulty; if the throat be sore, with much redness, the tongue shrivelled and pallid; if the eyes be red and watery, with a quick transition from a full,

open, to a small, contracted pupil; if the patient express but little concern for his situation, and the senses be nearly lost; if the stronger stimuli have not conquered the vomiting, and the patient become stupid, and his respiration laborious and rattling, the event is certainly fearful, for the case will probably prove mortal. But, notwithstanding, if the symptoms threaten coma, or if it has already come on, our efforts should not be relaxed; they ought rather to be redoubled. While the lamp of life burns, although its flame be scarcely perceptible, no means, which can possibly prevent its extinction, ought to be neglected. By a constant and careful attention to the patient, by a vigorous perseverance in the use of medicine, by seizing every opportunity to introduce it, many have been raised almost from the grave, and restored to the world, their friends, and to health. "*Dum spirat, sperabo,*" on such occasions, should be our motto! In no disease can its observance be more useful, nor its effects more pleasing, than in Spotted Fever.

METHOD OF CURE.

The indication of cure in Spotted Fever, considering it as a disease of debility, is, to support the powers of life by diffusible and permanent stimuli. The prostration of the vital powers, is so extreme, that there is danger of the patient's life before reaction can take place; and as long as this prostration continues, he must be supported by stimuli, or life will be extinguished. If there be excess of action in the sanguiferous system, it should be sub-

dued by venesection, before any other curative means are employed; or, if the secretions of the alimentary canal be diseased, they should be removed by emetics and cathartics, before tonics, to brace the weakened fibre, are administered. But where neither of these objects are to be accomplished, no one will adopt the means for that end; for their effects will always be injurious, and hurry the patient to his grave. With this indication, the physicians commenced the treatment of this disease, and were confirmed in the truth of it by the success which followed their practice. The means used to effect this intention, the proper quantity of medicine, and the time for its application, will now be pointed out. "Unexceptionable rules cannot be introduced into the practice of physic;" and as the spotted fever existed, like the scarlatina, from the most dreadful form, through all the intermediate grades, to one so mild, as to require but little assistance from art, it is impossible to give directions suited to the exigency of every case. The necessary doses of medicine, therefore, cannot be specified; it must be determined by the physician, from the violence of the symptoms, and the progress the disease has made; but the indication, already laid down, must, in a short time, be accomplished, or the patient will inevitably die. If mild stimuli will effect it, it is well; if not, the stronger must be resorted to: some cases will require no more than warm aromatic teas, with a generous diet; while in others, a very liberal use of the most diffusible

stimulants, will be indispensable to the recovery of the patient. I shall now state the practice that was found necessary in ordinary cases, and in adult patients, and the treatment for some particular symptoms.

The agents, chosen according to the indication, already laid down, to support the powers of life, and sustain the patient, until the violence of the disease had passed, were opium, arsenite of potash, ardent spirits, wine, hot teas, soup, epispastics, and the external application of heat. Heat was applied by fomentations, by billets of wood steeped in hot water, and by the other modes in common use. Its effects were found very useful, not only at the commencement, when these means were always used, but also, during the progress of the disease: they were renewed as often as the skin became cool, or they had given out their heat and lost their stimulating powers. It was always an object of much importance to produce a moist skin, or, if this could not be effected, to preserve a warm one, both of which, these applications assisted materially to procure. They could not, however, be fully obtained, without internal stimulants, given in large and frequent doses, and continuing them, until the heat and pulse were restored to a proper state. Of these, hot aromatic teas, opium and wine, or one of the ardent spirits, formed a part; the quantity of each being proportioned to the age of the patient, and the violence of the symptoms. It was only in the milder cases, that hot teas were allowed before more powerful stimuli had been given; and even

then, it was necessary to add to them spirits, as well as opium. In more serious cases, from fifteen to thirty drops of laudanum, repeated in two or three hours, with a glass of wine or spirits, every hour or two, was a common prescription.

When vomiting had come on, wine, if administered, was generally rejected, and if persisted in, increased this dangerous symptom: in such cases, a more powerful stimulus was required, as brandy, clear or diluted, with or without spices, or, if more agreeable to the patient, gin or spirit. Sometimes hot liquors would remain on the stomach, when cold ones would have been rejected; and generally, when spirits were diluted, they were much more palatable, as well as really better, for being hot: at other times, the same effect was produced by the addition of spices. If the puking continued very violent, a blister over the stomach, or on the back opposite to it, operated very favourably, and was generally applied at this stage. In other cases, blisters applied to different parts of the body, produced very good effects, by increasing the excitement, and were freely used. Arsenite of potash, in doses of one or two drops, every hour or two, was administered especially, if the numbness was considerable, and in some instances of vomiting, which had not been checked by other means: in some cases, it was not ordered until a day or two from the attack, and in others, its use was not necessary. The quantity of this medicine was regulated by the state of the external senses; eight or ten drops, every second or third hour, being necessary for the

first doses, where they were most impaired; but afterwards, this quantity was reduced to two or three drops every hour. Soup also was ordered as soon as the patient could retain it; and in many cases, after the stimuli already mentioned, had been continued a number of hours, they took it in considerable quantities.

If, under the operation of the above remedies, the pulse became stronger; if the tongue lost its dry and pallid appearance; the skin became warm and moist; if the patient had been delirious, but was regaining his reason, he was then considered in a state of comparative safety. But it was necessary for his complete recovery, that he should be kept in this state, until the appetite was so far restored, that animal food with tonics could be introduced, in sufficient quantities, to preserve a proper action. To effect this, a regular course of the stimulants was ordered, suited in kind and quantity to the exigency of the case; diminishing them as the appetite and strength increased, and substituting in their place the more permanent, as the cinchona, colombo, or any of the vegetable astringents. Some time between the second and sixth day, if the medicines had produced the expected effect, by increasing the action of the system, it was necessary to open the bowels by a mild cathartic or an enema. In most cases, small doses of calomel were given on the second or third day; not with a view to evacuate the bowels immediately, but to prepare them to be opened by an enema. It was not attempted to open them until nature called for

relief; for, during the violence of the disease, nothing could be removed from them which had any agency in producing, or which assisted in keeping up the diseased action: and this relief was called for, at an earlier period, where clysters of laudanum and brandy had been frequently used, than where their use had not been required. To effect this, an enema was preferable to a cathartic, for it induced less debility, and its operation was more under controul. It was generally administered after the calomel had been continued twelve or fourteen hours: it was not intended to procure more than one evacuation; and in some cases, so great a prostration followed this, that the patient was with much difficulty recovered from it. When this took place, large injections of laudanum and brandy, or laudanum and soup were resorted to; as well to check the discharge from the bowels, as to increase the action of the system, for which additional stimulants became necessary. When the clysters were continued for a number of days, the intestines were evacuated once in twenty-four or forty-eight hours; but when stimuli, in sufficient quantities, could be introduced into the stomach, an evacuation, unless some particular reason required it, was not necessary more than once in three or four days. The diffusible stimuli were always cautiously and very gradually withdrawn, and only where the more permanent could be substituted in their place. About the fourth or fifth day, or at an earlier period, if the stomach would retain it, cinchona was given in as large doses as the patient could bear; and at this

period, wine was generally sufficient, with the tonics, to preserve a proper action, and was continued until the debility, consequent to the disease, was removed, and the patient could resume his usual mode of life. If coma had come on, a fatal termination was only prevented by increasing the quantity of stimuli, and by seizing every opportunity to introduce them. As during this state, no medicine could be given by the stomach, large and repeated injections of laudanum and brandy, or soup, sometimes raised the patient from a comatose state, and enabled him to receive stimuli by the stomach, so as to prevent the return of this formidable symptom. The application of epispastics, and volatile medicines thrown in the nostrils, have had the same effect. There have been instances, where an emetic, which operated very quickly, produced the same result. Attempts have been made to rouse the patient by injections of turpentine and copaiva, and in a few instances, with success; but more generally the bowels were so torpid, that even six or eight ounces proved useless. Venesection gave no relief.

Therefore, when called to a patient recently attacked with spotted fever, our object is to raise the excitement by the use of external and internal stimulants. If the attack be moderate, mild ones will answer at first, and probably through the course the disease; if it be violent, the more powerful must be used: at any rate, let enough of such as are proper be administered. To increase the ex-

citement, and procure a warm, moist skin, let the patient be put in a warm bed, let heat be applied and continued till the object is gained. At the same time, some internal stimulants must be given, conjoined with opium, which, in all cases, will be indispensable; especially if there be great pain or raving delirium, when it should be repeated at short intervals until the senses be restored. Let the stimulant that is used, be repeated at proper intervals, and increased if the symptoms do not soon yield. On this circumstance, in a great degree, depends the succeeding treatment: if they do yield; if a warm and moist skin be produced, and if the pulse increase in strength, it is probable the case will require only mild treatment, and the weaker stimuli will be sufficient.

But, if the symptoms do not yield; if the heat be not restored, nor the pulse increased in energy; if the medicines be ejected from the stomach, let the stronger stimuli be resorted to, or the mode of administering those already used, be changed. When laudanum does not agree with the stomach, from some peculiarity in the constitution, let it be given by injections, with brandy or soup. If wine sours on the stomach, and increases the vomiting, let one of the ardent spirits be used, or the acidity corrected by some alkali; apply an epispastic to the back or over the stomach; let the medicines be given in smaller and more frequent doses; let the arsenite of potash be administered in small quantities; especially if the heat be not restored, or after

having been restored, it has again receded. In some cases, much benefit will be derived from changing the stimuli, although they be of equal strength; let the patient have constant and careful attention; let all means, that afford a prospect of success to check the vomiting, be used; for unless this be soon stopped, coma will succeed, when access to the stomach being cut off, there will be much less prospect of removing the disease. But, if coma has come on, we should not despair. Let the number of blisters be increased, as well as the external applications of heat; let there be large and frequent injections of laudanum and soup, or soup administered, and some of the methods of rousing a patient already mentioned be tried. But we will suppose, that the medicines have had their intended effect, and more favourable prospects present. The small doses of mercury should now be assisted by a laxative injection and the patient supported under its operation; milder stimulants with tonics will enable us to hold the advantages gained; the former should be cautiously diminished and the latter gradually increased as convalescence progresses. Let these be assisted by generous diet and proper cordials until health be completely re-established. Under such a course, this end will probably soon be gained; for, to such treatment, and to such only, has this disease yielded.

A. Clinton pinx.t

A. Anderson Sc

Erigeron Canadense ?

AN INQUIRY

INTO THE

BOTANICAL HISTORY, CHEMICAL PROPERTIES,

AND MEDICINAL QUALITIES.

OF THE

ERIGERON CANADENSE.

BY CORNELIUS E. DE PUY, M. D.

Fellow of the Society.

Read the 5th of September, 1815.

BOTANICAL HISTORY.

The Erigeron Canadense is a common plant throughout the United States, and is found in abundance in the vicinity of the city of New-York. Farmers and gardeners treat it as a nuisance, but they have not yet succeeded in their industrious attempts to extirpate it. Though a native of America, it now grows spontaneously in the south of Europe. It was probably carried across the Atlantic towards the middle of the 17th century, for it is not noticed by either of the Bauhins, or any other author prior to Morison, who appears to be the first botanical writer that has described it, though it is mentioned by his contemporaries. This supposition, respecting the time when it was introduced into Europe, is not contradicted by the observation of Merret, that it was a familiar plant in

many parts of England, in 1667; for the seeds are so well supplied with the means of being wafted through the air, that it may have been extended, from a single botanical specimen, over a great portion of that country within a few years after its introduction. The genus, of which it is at present a member, received its name from Pliny, who derived it from the Greek of Dioscorides; but the plant to which they gave this name, was arranged by Linnæus, under the genus Senecio (vide sp. 20.)

The Erigeron Canadense was first classed under the genus Conyza by Morison; and after him by Tournefort and Clayton. Mon. Jussieu arranged it under his tenth class and third order.

According to the artificial arrangement of Linnæus, the genus Erigeron belongs to class xix.—Syngenesia.—Order II. Polygamia surperflua, and to its third subdivision, Radiati.—The NATURAL CHARACTER of the genus is thus particularly and clearly described by that distinguished naturalist:

ERIGERON. CAL. *Communis* oblongus, cylindraceus, imbricatus: *squamis* subulatis, erectis, gradatim longioribus, subæqualibus.

COR. *Composita* radiata: *Corollulæ* hermaphoditæ tubulosæ in disco. *Femineæ* ligulatæ, in radio.

Propria hermaphroditi infundibuliformis: *limbo* quinquefido.

Femineæ ligulata, linearis, subulata, erecta, sæpius integerrima.

STAM. Hermaphroditis: *Filamenta* quinque, capillaria, brevissima. *Anthera* cylindracea, tubulosa.

PIST. Hermaphroditis: *Germen* minimum, coronatum pappo corollula sua longiori. *Stylus* filiformis, longitudine pappi. *Stigmata* duo, oblonga, revoluta.

Femineis: *Germen* minimum, pappo corollæ suæ longitudine fere æquali. *Stylus* capillaris, longitudine pappi. *Stigmata* duo, tenuissima.

PER. nullum. *Calyx* connivens.

SEM. Hermaphroditis oblonga, parva. *Pappus* longus, pilosus.

Femineis simillima hermaphroditis.

REC. nudum, planum.

OBS. *Flosculos disci intimos, seu intermedios, sæpius masculos esse observat Dillenius.*

Species datur flosculis femineis nudis.

The following ESSENTIAL CHARACTER of Linnæus is adopted by Murray and Willdenow, viz.

ERIGERON. *Recept.* nudum. *Pappus* pilosus. *Cor.* radii lineares angustissimæ.

The Essential character of Persoon differs a little from this—The second edition of Linnæus contains sixteen species; Murray enumerates twenty-two; Willdenow thirty-two; Persoon forty-four; Michaux mentions six, and Pursh fourteen North American species—From which it appears that several new species must have been lately discovered.

The SPECIFIC CHARACTER of the plant under examination is thus distinguished in Willdenow's edition of Linnæus.

ERIGERON CANADENSE. E. caule floribusque paniculatis, hirtis, foliis lanceolatis, ciliatis.

Some of the editions of Linnæus, previous to that of Willdenow, contain only the first part of this definition.

A variety of terms and specific phrases have been employed by different writers, to characterize the Canadense, as

Virga aurea virginiana hirsuta, flore pallido.—*Zanon.*
Eupatorium cannabinum Americanum angustifolium.
Park. Theat.

Conyza, Conyzella and Conyzoides were the terms most frequently used to designate it by the earlier writers on botany. It has also received several English names; as White, and Annual, Canada Flea-bane; Canadian Erigeron; Golden Rod by Petiver, which is a common name, for several of the species of Erigeron. Canada Flea-bane is the one by which it is most generally known in this country.

It appears that there is no other engraving of this plant than that referred to by authors, in Morison's History, which I have not been able to examine. As it is a common plant in England, particularly about London, it is rather surprising that it has not been represented in either Curtis' and Sims' Magazine, or Sowerby's and Smith's Botany. Willdenow, Persoon and others refer to the Flora Danica, No. 292, but that is the Erig. Uniflorum, and is so called in the index; the work does not contain a plate of the Erig. Canadense. This is one of the mistakes in references and quotations of authors and the supposed emendations of editors, which are sometimes met with, and create some confusion in examining its history. More than

one species of the Erigeron appear to have been described under the name Canadense; Michaux in particular has confounded it with the Strigosum of Mühlenberg, to which it bears a more close resemblance, from the description, than to any other; but the latter is stated to be a biennial plant, and to have a white flower; the Canadense, on the contrary, is Annual, and the colour of its flower may be said to be a pale yellow. It is also mistaken for the Philadelphicum, but this differs from the Canadense in its lower leaves half clasping the stem; in the purple colour of its flower; in being perennial, according to Mühlenberg, and in growing only to the height of two or three feet. The plate which accompanies this dissertation, exhibits the flower in full bloom, with a few florets not yet expanded, and the base of others, where the seed is supposed to have dropped off. At this time the lower leaves have become so dry, that their oval form, tapering to the footstalk cannot be represented.

The Erigeron Canadense, as some of its names indicate, is an annual plant.—It appears to seek a dry, gravelly, and somewhat elevated soil.—I have known it to arrive to perfection on the roof of a house, where its roots found only sufficient ground to support its weight. Its usual height is about four feet, though it sometimes grows to six feet—the stem is hairy and has numerous branches near the top in the form of a cone. The specimens which I have examined, had the lower leaves subdentate, agreeing with the account of Scopoli in his Flora

Carniolica, "Foliis imis dentatis"—but a gentleman informed me, that in the vicinity of this city, he has sometimes seen the upper leaves dentate, which reconciles the authority of Scopoli with that that of Withering, who says, "the leaves above, with distant serratures." The calyx is short, linear and inner scales longest. It flowers from the beginning of August to September. The florets are very small, on slender peduncles; "yellow in the centre; in the circumference, white, with a tinge of red;" *(Martyn's Miller.)* The manner in which Zanoni expresses the colour of the full blown flower (flore pallido) is not sufficiently definite; the pale ground has a tinge of yellow,(dilute luteo. *Clayton's Gron.* p. 122)—every part of the plant, as Clayton remarks, is odoriferous (tota planta est odorifera) and diffuses an agreeable flavour through the field when the flowers are in full bloom.

CHEMICAL PROPERTIES.

Though the following experiments are few, yet they were carefully conducted, and frequently repeated; some dependence may, therefore, be placed on the result, and the existence of the proximate principles which they indicate.

An infusion of the leaves, in distilled water, was subjected to the usual tests for ascertaining the Extractive Matter, and from the changes which occurred, we may confidently infer that it contains this principle.

On adding the muriate of tin, a copious, light-coloured precipitate immediately appeared; this

was changed to a dark grey colour, after standing some time in the shade, but sooner when exposed to the direct rays of the sun. The solution of alum caused a fawn coloured precipitate, but not immediately. Precipitates ensued sometime after adding the mineral acids. The tincture and solution of the extract afforded similar results with the same re-agents. The extract dropped into the nitric acid, was dissolved with some effervescence, and nitrous gas escaped; the acid became coloured, and shortly after, a white precipitate subsided, which was probably the extractive matter, as it is insoluble in acids. The decoction also deposited a sediment on cooling.

The tincture, infusion and solution of the extract were again tried with the following re-agents, and all afforded nearly the same result. On adding the solution of green, mixed with a little red sulphate of iron, the colour was immediately changed to a bluish black. Acetate of lead caused a white flocculent precipitate. Nitrate of silver and sulphate of copper produced precipitates of a brown colour. When muriate of gold was added, the mixture immediately assumed the colour of chocolate, and after some time, a precipitate took place, of the same appearance. An orange coloured precipitate followed the addition of the corrosive muriate of mercury. All these appearances indicate the existence Gallic Acid; but, limus infusion suffered no change; still this acid is so clearly ascertained from the changes which were produced by the above

tests, that the latter circumstance must have been owing to the experiment.

The existence of Tannin may be inferred from the insoluble precipitate which formed on adding gelatin to the infusion, though this did not immediately occur; from the bluish cast given to the black colour produced by the green sulphate of iron, which was probably occasioned by the small quantity of red sulphate that the preparation contained; also, from the dark grey colour which the precipitate with the muriate of tin was observed to assume; and lastly, from its effects on the system as an astringent.

I have not been able to satisfy myself that the plant contains Resin. The speedy relief which it often gives in pain and griping in the intestines, leads to the conclusion that it possesses a small portion of the Narcotic Principle.

One ounce of the flowers was put into a retort, with ten ounces of distilled water, and half of it was drawn off by a moderate heat. A small quantity of Essential Oil, of the same aromatic flavour, with that of the plant, floated on the surface the contents of the receiver; and the fluid it contained was clear, having also the same flavour. What remained in the retort, was filtered and gently evaporated to the consistence of honey. This Extract had a dark colour and bitter taste; it was found on trial to contain the known medicinal virtues of the plant, except those which appear to depend on the essential oil which is dissipated.

Alcohol, like water, appears to dissolve all its ac-

tive properties. The tincture of every part of the plant, excepting the roots, which I did not try, possesses an aromatic smell, an agreeable taste, and the colour of Madeira wine; which it also imparts to water. Some experiments induce the conclusion that the seeds are the most active part of the plant. The flowers possess its medicinal qualities more abundantly than the leaves, and yield a greater quantity of extract and more copious precipitates, if gathered late. The roots appear to be the least active part of the plant.

MEDICINAL QUALITIES.

Medical chemistry is so limited in its application to the vegetable kingdom, that, notwithstanding all that has been, or as yet can be done, by heat and mixture, towards separating and ascertaining those principles of vegetables on which their active powers depend, we must still have recourse to prescription for a knowledge of their effect on the human system, which we cannot obtain, à priori, by chemical analysis. Experience respecting the virtues of medicines, is necessarily slow and sometimes deceptive; hence it is often long before the real medicinal properties and extent of the powers of a remedy are correctly ascertained.—Many of the most useful medicines have not received a formal and scientific introduction into the Materia Medica, until they have served for a length of time in some subordinate station, and have gradually become distinguished amongst the confused

group which composes the recipe of the vulgar. The reputation of the Erigeron Canadense, has also been confined to that humble sphere to which professional pride seldom stoops, and which is too frequently disregarded by medical men as unworthy of notice.

In the Amœnitates Academicæ tom. iv. disser. lxxii. De Specifica Canadensium, which is stated to be a Latin translation of Bartram's Appendix, mention is made of the Virga Aurea and Erigeron, as reputed antidotes to the bite of serpents and poisonous reptiles, and as efficacious in resolving tumours. But though the first is a synonym, and the latter the adopted name of the plant under consideration, yet the description of both, in some respects, differs materially from that of the Linnæn Erigeron Canadense, which does not appear to have been noticed as a remedy by any medical writer.*

The Erigeron Canadense was first introduced into the practice of the New York Alms House in 1812, by Dr. Gilbert Smith, the attending physician. It was recommended to him by a medical gentleman who had witnessed its efficacy in a case of Diarhœa, which, after the usual remedies had

* After the above was written, I obtained a French work from Dr. Eddy, entitled "Medical Herboriste," said to be edited by a medical botanist, and published at Paris in 1802. The Erigeron Canadense is mentioned as being a useful remedy in visceral obstructions and in incipient dropsy. I have no experience of the first, but what is there observed concerning its diuretic quality, corroborates what is stated in the subsequent part of this inquiry, respecting its effect on the urinary organs.

failed to afford relief, was speedily cured by the decoction of this plant, under the direction of a female acquaintance. The decoction and infusion were administered in the Alms House with decided advantage in Diarrhœa. Several distressing cases were cured, and others relieved by a few doses; but it also sometimes disappointed our expectations; and, what at first appeared in some instances unaccountable, evidently aggravated the complaint. This, on examination, was found to be apparently owing to the above preparations spoiling in warm weather, before the quantity allowed, for the day, was all taken. It was also considered that the infusion and decoction are improper forms of exhibiting it in Diarrhœa, because the quantity of fluid, in which it is taken, has a tendency to counteract its beneficial operation. On account of these objections, and having also lost the advantage of novelty, it was neglected until the following year. I then prepared the extract and tincture; both of which succeeded in curing a great majority of the cases in which they were used. After proper evacuations, a few doses were generally sufficient in ordinary cases that had not become very inveterate. It was sometimes intentionally given in some instances of recent Diarrhœa without any previous evacuations, though they were obviously indicated; in almost every case of this kind it arrested the complaint as speedily as when evacuations had been premised. A friend of mine was attacked with a troublesome and debilitating Diarrhœa, during a visit to the

city; he was anxious to be immediately cured--two doses, of half an ounce of the tincture, had the desired effect. But it is manifestly improper to restrain Diarrhœa when the contents of the bowels are vitiated, before they have been thoroughly evacuated; fever may be the consequence, and I have known this to follow such premature use of the Erigeron Canadense. I was unable to try its efficacy in many cases of chronic Diarrhœa in consequence of the small quantity of flowers which I had gathered; but some cases of long standing were completely cured and others were much relieved by a few doses which were only given to observe its operation. Six doses, consisting of one grain of the extract, completely cured one patient, sixty years old, of a distressing Diarrhœa, with which she had been afflicted for two months, and by which she was very much debilitated.

Whilst it lessened the frequency of the alvine discharges, it generally, though sometimes but temporarily, quieted the pain and griping attendant on Diarrhœa. The tincture and extract almost uniformly increased the quantity of urine, and it not unfrequently operated as a powerful diuretic. I confess that these cases are selected from the most favourable of the number which came under my notice, during the time I was attached to the Alms House under the direction of my respected friend Dr. G. Smith. Its failure in several instances may be attributed to a number of circumstances which combine to make Diarrhœa one of the most

prevalent and obstinate diseases of that Institution, and which frequently render medical aid entirely unavailing. The physicians had not the liberty of regulating the diet of the sick. Though the stated and uniform diet of the paupers, was as good as what is generally allowed in such institutions, yet, in many respects, it was calculated to aggravate complaints of the bowels; where it is an object of the first importance, to regulate it with caution. Cases, where Diarrhœa depended on affections of the liver, as might be expected, received at best but temporary benefit from the use of the Erigeron.

Recent Dysentery was manifestly aggravated by the use of it, and it frequently appeared to irritate the rectum in those cases of chronic diarrhœa where some bloody slime is mixed with the discharges and sometimes constitutes a great part of the evacuations, attended by considerable tenesmus, and which might be aptly termed dysenterico-diarrhœa.

It is also worthy of remark that the Erigeron Canadense was, in no case, accompanied by those auxiliary means which we find it sometimes advantageous, and even necessary, to combine with those more active remedies on which chief reliance is usually placed. The increase of urine, which was uniformly observed to attend the use of the tincture and infusion, induced me to prescribe the latter in a case of Ascites, in which the quantity of urine was considerably less than natural. The patient was directed to take a pint of the infusion daily; his ordinary drinks were so regulated as not to interfere with the result. The quantity of urine amounted

the next morning to twenty-four ounces. The same quantity of the infusion was continued, and the secretion increased until the fifth day, when it amounted to sixty-seven ounces; the swelling had evidently subsided. He now objected to continue the use of it, on account of the taste being unpleasant to him, and was ordered to take calomel and squills by the attending physician.

I once gave the tincture in a case of Dysuria, in a patient subject to spasmodic stricture, accompanied by painful contraction of the bladder and violent scalding in the urethra; the relief it gave him was so speedy, and complete, as to induce him to accompany his thanks with the most lively expressions of gratitude.

It has already been observed that the infusion and tincture, operated more powerfully on the kidneys, than the other preparations, which makes it probable that its diuretic quality depends on the aromatic property or essential oil it contains. The tincture may be made by digesting one ounce of the leaves in a pint of brandy or diluted alcohol, and filtering it after eight days; this possesses the pleasant flavour of the plant, and is an eligible preparation, as it possesses all the qualities of the plant in a small compass. The volatile oil is dissipated in making the decoction and extract; but the latter is a convenient and powerful preparation if carefully made. If the decoction be preferred, it should be made with milk—one ounce of the leaves to a quart of milk, makes rather a pleasant drink, which is rarely objected to by children.

OBSERVATIONS

ON THE

CLIMATE AND DISEASES,

OF THE TOWN OF DEERFIELD, IN THE COUNTY OF FRANKLIN AND STATE OF MASSACHUSETTS.

COMMUNICATED BY

DR. STEPHEN W. WILLIAMS,

Corresponding-member of the Society.

Read the 5th of December, 1815.

GENTLEMEN—It was my intention in this communication to have furnished the Medical Topography of Deerfield; but as my friend, Mr. Dickenson, has just published a view of this town, containing most of those important particulars, which I should have mentioned, it prevents the necessity of my writing upon that subject.*

The CLIMATE of this town is not essentially different from that of the neighbouring towns in the interior of the commonwealth, from twenty-five miles from the sea-coast to the banks of the Hudson river, in the state of New-York. It is extremely variable, and has by no means the uniformity of climate of some of the southern and western states.

* See Dickenson's Geographical, Statistical, and Historical View of Deerfield, Massachusetts.

It is believed, that the climate, in all parallels of latitude, is nearly the same, excepting their local peculiarities; for instance, the climate in the same parallel upon the seaboard is milder than in the interior; that in old countries is less humid, than that of new. Winds have an essential and striking influence upon climate. The winds which blow from the Atlantic ocean are milder than our north-western; the latter passing over immense masses of snow and ice, which abound in those regions. It may, perhaps, be questionable, whether fogs have an influence upon climate, or climate upon fogs. There is, generally, much more fog in new, than in old cultivated countries; and more in vallies, near stagnant waters and running streams, than upon elevated hills. Those from stagnant waters are generally unhealthy, predisposing to intermittent and other fevers; while those from running streams are considered, if not healthy, far from inducing disease. The fogs upon the extensive valley of Deerfield meadows, are far more dense and of longer continuance, than upon the adjacent mountains.

It is not my intention, in my observations upon climate, to attempt to refute the malignant aspersions of foreign hireling travellers, who have undertaken to traduce the American character, by asserting, that, in the climate, west of the Atlantic, every thing, even men, brutes, and trees, has suffered a deterioration from those of Europe. Experience daily exhibits, the most undeniable proofs of the

falsity of their assertions. America furnishes animal and vegetable productions, superior to most other parts of the world; and men, who, for vigour of body, surpass, and for strength of mind, equal any country in Europe, and who would do honour to any country in the world.

In order to form a just estimate of the climate of any country, it is necessary that correct and accurate Meteorological observations should be taken daily. These should be confined particularly to Thermometrical, Anemetrical, and Pluviametrical researches; at the same time it would be well to direct the attention to Barometrical and Eudiometrical observations. The weight and moisture of the atmosphere are, perhaps, of secondary importance.

The mean degrees of heat and cold, from year to year, do not greatly vary. It has, however, been remarked, with what degree of accuracy I will not pretend to vouch, that there has been a greater prevalence of cold and moisture, since June 1806, than at any period preceding that time. If this is the fact, I acknowledge I am at a loss to account for it.

My friend General Hoyt, of this town, has obligingly furnished me with the following result of his Thermometrical and Anemetrical observations, made at Deerfield, for part of the year 1806—7, as published in Adams's Register.

April 1806	Mean degrees at sunrise.	Mean degrees at 2 P. M.	Mean degrees of the month.	Greatest heat in the month.	Least heat in the month.	Prevailing winds.
April	34 °	52 1-3°	43 1-6°	21st 72°	11th 19°	N. W.
May	46	71	58 1-2	29th 88	12th 32	N. W.&N. E.
June	57 1-2	79	68	8th 92	3d 42	S. & S. W.
July	60 1-3	80 1-2	69	15 & 26 96	5th 46	S. & S. W.
August	59 5-6	74 1-2	67 1-8	8th 88	19th 48	S. 14 days
September	55	72 1-2	65 1-2	9 & 17 86	23d 44	S. 15 days
October	38	61 2-3	49 5-6	4th 80	30th 33	W'd. 15 days
November	32 1-2	44 1-2	38 1-3	9th 58	19 & 20 21	N.
December	20 2-5	34 1-3	27 1-3	1st 49	17th 00-6	N. W.
Jan. 1807	13 1-3	29 1-3	21 1-3	29th 45	26th 00-10	Variable
February	17 1-2	31 1-3	24 1-2	13th 50	9th 00-14	N. W.
March	20	39	29 1-3	22nd 47	7 & 16 4	N. & N. W.

From the above table it will be seen, that we have the extremes of cold of Lower Canada, with those of heat of North Carolina and Georgia.

From some pluviametrical observations made by my grandfather, it appears that the snow fell in 1812 76 1-2 inches. That, however, was an unusually cold winter.

A Calendarium Floræ, exhibiting the germination, foliation, florification, and fructification of plants, would furnish interesting particulars upon the subject of the climate of this town. A brief one, upon this plan I have prepared, which, together with some meteorological observations, I must reserve for a future communication.

This town may be considered as healthy as any upon Connecticut river. The diseases are nearly similar to those of the neighbouring towns in the vicinity of this place. There are now no local causes which peculiarly predispose to disease.

Formerly the inhabitants of this town were peculiarly subject to intermittent and bilious fevers, owing to stagnant waters and vegetable miasmata, which were occasioned by the subsiding of the waters from the level of our meadows. Originally the site of the town-street and our extensive meadows were the bed of a lake; a passage for which has burst through the mountain about a mile from where it now empties into Connecticut river, and upon the subsidence of the waters of the lake, the meadows were left an extensive marsh, interspersed with numerous ponds of stagnant water; the fogs arising from which and putrid vegetable miasma occasioned annually numerous cases of fever and ague. This is always the case in new level countries in the neighbourhood of lakes and ponds of stagnant water. Within fifty years, however, there have been few cases of this disease, and at present it does not prevail here. The marshes have dried up; Deerfield river runs rapidly through the meadows, and there are no ponds of stagnant water.

Generally speaking there are no prevailing disorders. There, however, occasionally happen, epidemic diseases, as is the case in every town in the United States. The diseases with which we are occasionally visited, are extremely diversified. Perhaps as great a number of deaths occur from pulmonary consumption, as from any one cause; this disease, however, has not increased upon us for twenty years. The croup in infants, the dysentery and the various species of fevers,

with the consumption, may be said to be the most prevalent complaints. Once within twenty years we have seen the terrible ravages of epidemic dysentery; and twice within that time, of a peculiar malignant epidemic fever. The origin of the spotted fever, which prevailed here in the autumn of 1806, was traced to animal and vegetable putrefaction, and a want of proper attention to cleanliness in the families in which it prevailed. Its destructive ravages were confined, principally to these families. A few sporadic cases have appeared since that time. The pneumonia typhodes we have had, in common with our neighbours, in the different towns in the vicinity of this place. The other fevers which have recently prevailed here, have been either typhus, or the autumnal bilious remitting fevers. These have been principally confined to that section of the town which lies immediately upon the banks of Connecticut river, which has hitherto been considered the most healthy part of the town. This tract of land is separated from the main street by a high ridge of hills running through the town, from north to south, and terminating south at the Sugar Loaves.

It has been stated, and I believe the observation is correct, that diseases are generally less inflammatory in this place than in the neighbouring elevated towns.

Of late, our winters are more unhealthy than our summers. Fevers prevail more at this season than

at any other, contrary to the usual laws of these complaints.

Nearly the same observation will apply to diseases, as to climate, viz. that in all parallels of latitude, excepting particular localities, and the manners, customs, occupations, and luxuries of mankind, diseases are nearly the same.

The Parish Register states the number of deaths in this town for 29 years past, to have been 510. Upon an average, this is a fraction over seventeen a year. According to the same Register, it appears that fifty-nine of these have died of consumption, sixty-six of dysentery, and forty-eight of fever. The accounts of the diseases are, however, taken merely from the recollection of the clergymen. Probably the deaths from fevers have been more than is registered. Many of the inhabitants of this town have lived to an extreme old age, and their deaths have been occasioned merely by debility from that cause.

The subjoined list of diseases, will give a tolerable idea of those complaints which usually prevail here. They are those which have fallen under the particular inspection of my father and myself, from the commencement of January 1815, to the middle of September. Many of them have been very slight. My observations upon particular diseases must be brief.

It should be noted, that the weather this year for the greater part of the time, has been very variable. The cold of winter commenced early and was ex-

tremely severe, and the forepart of summer very warm.

ACUTE DISEASES.

Continued Fevers,	24	Enteritis,	2
Cynanche Trachealis,	22	Acute Rheumatism,	4
Pneumonia Typhodes,	20	Colica,	5
Cynanche Maligna,	1	Erysipelas,	2
Cynanche Tonsillaris,	2	Morbilli,	8
Hæmoptysis,	1	Puerperal Fever,	2
Pleuritis,	1		

CHRONIC DISEASES.

Sciatica,	2	Debility,	6
Chronic Rheumatism,	5	Vermes Lumbricales,	4
Arthritis,	1	Tænia,	1
Paralysis,	1	Rachitis,	1
Apoplexy,	1	Anasarca,	1
Neuroses,	4	Ascites,	1
Amenorrhœa,	5	Hydrothorax,	1
Menorrhagia,	7	Vertigo,	1
Phthisis Pulmonalis,	2	Asthma,	1
Pneumonia,	4	Tussis,	8
Scrofula,	2	Constipatio,	1
Icterus,	3	Spasm,	2
Mania,	1	Hæmorrhois,	3
Stranguria,	5	Singultus,	1
Diabetes,	1	Poison,	1
Diarrhœa,	18	Anomaly.	1
Dysenteria,	3		

LOCAL DISEASES.

Cutaneous Eruptions,	15	Hernia Inguinal,	3
Frost Bitten,	2	Hernia Pudendal,	1
Spasmod. Strict. Œsoph.	1	Hernia from wound,	1

Permanent Strict. Œsoph.	1	Contusion,	8
Stoppage of do.	1	Apthæ,	9
Burns,	3	Tic Douloureux,	1
Gravel,	1	Ophthalmia,	11
Sprains,	6	Raucedo,	1
Deafness,	1	Poison,	1
Wounds,	5	Paronychia,	4
Abscess,	13	Fistula in Ano,	1
Abscess. Aurium,	2	Fistula Lachrymalis,	1
Sore leg,	2	Fractures,	3
Spina Bifida,	3	Anus Imperforatus,	1
Carcinoma,	2	Variola Vaccina.	30

Under the head of continued fevers are placed all those fevers which have occurred here since the commencement of the year, excepting Pneumonia Typhodes and Puerperal Fever. They have been, generally, of the remitting kind; few have commenced Synocha and terminated *Synochus.* We have had, however, but few cases of unmixed Typhus.

The term *Cynanche Trachealis* has been applied to those diseases of infants which have commenced with lassitude, high fever, laborious breathing and rattling in the throat. There has generally attended a cough; and where the child has been large enough to spit, a considerable expectoration of frothy and mucous matter. The bowels, likewise, have been considerably disordered; the stools of a greenish colour and slimy consistence. The pulse extremely frequent, and for the most part, very feeble. In the fatal cases, death has taken place at all periods from the second to the ninth day. The

appearances on dissection have shewn a highly inflamed state of the lungs, and, in many instances, though not in all, a mucous deposite in the bronchia, and on the surface of the lungs. We have never been able to discover that peculiar membrane in the bronchia, mentioned by Cheyne and other writers. Perhaps, however, the complaint has been of a mixed nature, partaking somewhat of the Pneumonia Typhodes, which has prevailed among adults at the same time.

In the treatment of this complaint, at the commencement, we have generally combined emetic and cathartic medicines. Calomel and tartarized antimony has been our general combination; this is generally followed by senna or ol. ricini. After the stomach and bowels have been well evacuated, expectorants have always followed. We have made use of seneka and glycyrrhiza, oxymel scilliticum, and vin. antimon. the sperma ceti emulsion and linctus; the lac. ammon. and assa fœt. with honey, &c. Blisters, strong sinapisms to the feet and the warm bath have been very useful and necessary auxiliaries. To correct the prevailing acidity in the stomach and bowels, we have made use of the chalk mixture combined with rhubarb, and the different absorbent preparations in general use. Venesection has been employed in some of the neighbouring towns, but the result has not been such as to justify its continuance.

Pneumonia Typhodes. This disease first made its appearance in this town in the year 1813. There

were, however, but few scattering cases that year. It again prevailed amongst us, very extensively, in the latter part of the winter and spring of 1814, and in the short space of two months there were upwards of twenty deaths from it. We have had this year between twenty and thirty cases. It generally commences without many premonitory symptoms. The patient is suddenly taken with the most violent cold chills, which frequently continue from twelve to twenty-four hours. The chill is much more severe and lasting than from any other species of fever; and the utmost exertions, on the part of the physician, are insufficient to suspend it immediately: these are followed by the hot or febrile stage; but the fever is by no means high. Simultaneous with the cold chill, is an excruciating pain, either in the breast, side, or bowels. That in the side is generally the most severe and common. The pain in the head is sometimes severe. Universal soreness and debility, nausea and vomiting of a black bilious matter, succeeded by cold clammy sweats, coldness of the extremities, delirium, coma, death.

The pulse, at the commencement, is generally full, but not frequent; rarely overgoing one hundred in a minute, except in the last efforts of nature, towards dissolution. The pulse is frequently intermittent. There is a great torpidity of the primæ viæ, and the skin is generally dry and hot. There is a variety in different patients, in the time of the accession of the fever; but generally it is at its height in the forepart of the day. Singultus, in the latter stage of the

disease, and subsultus tendinum are not uncommon. Epistaxis sometimes occurs; in some instances it is salutary, in others it prostrates the strength irrecoverably. Delirium is a frequent, and I may say, a general attendant on this complaint: it sometimes commences with the chill, but more frequently with the accession of the hot stage. Respiration is extremely laborious, the cough attending severe, with a profuse expectoration of a yellowish matter, tinged with blood, which is sometimes frothy, but more generally mucous. The fever, which almost always commences synochal, always ends in typhus: it prostrates the strength, and enfeebles the powers of life sooner than any disease which I have yet seen. These are some of the most prominent features in the symptoms of this complaint, as it has occurred amongst us. There is, however, a great variety in the symptoms, in different patients; scarcely any two having them exactly alike. Some have no pain in the breast or side, nor cough or expectoration, but the pain in those is confined exclusively to the head or bowels. Some have no pain at all, but, immediately after the cold chill, sink into a state of coma and deliquium animi.

The bowels, at the commencement of this complaint, are generally costive; a diarrhœa frequently supervenes in the course of the disease; for the most part, about the fourth or fifth day, which almost completely annihilates the powers of life.

Those who have been most subject to this com-

plaint, with us, were the aged and infirm, the intemperate, and those who have been debilitated from any cause. A few cases, however, have occurred, where it attacked hale, firm constitutions. The fatal cases have, almost uniformly, terminated previous to the seventh day. The work of destruction is completed from the first to the seventh day. Those who survive this period, generally recover, unless they have relapses. This recovery is, however, extremely slow, and they are left in a debilitated state for several months. It has uniformly proved fatal to the intemperate, to those of a cachectic habit, and to the aged above sixty. It prevailed most in the cold month of February, and the chilling month of March. The warm and genial influences of the sun, in the later months of spring, suspended its destructive operations; since which it has not prevailed epidemically in this town. We have had a few sporadic cases of it, at all seasons of the year, but the symptoms generally have not been so distinctly marked, as when it raged as an epidemic.

In the treatment of this complaint, we have generally commenced with an emetic, either of ipecac. or tart. antimony, and followed it with a cathartic. The discharge from the stomach was fœtid black bile, in large quantities, and from the bowels peculiarly offensive black stools. The relief, from these evacuations, was very evident. Febrifuges and sudorifics, composed of nitre, camph. and emetic tart. and powders consisting of calomel, ipecac. camph. and opium, and the Dovers' powder,

have been much relied on. We have generally found, that when the patient survived long enough for the calomel to affect the glands, he recovered, unless he had a relapse. Ptyalism was never carried to a great extent. In the use of expectorants, we have been liberal. Seneka and glycirrh. gum. ammon. linctus, sperma ceti, oxymel scilliticum, wild turnip and honey, &c. have, in turn, been resorted to. Blisters to the side, back of the neck, and bowels, have been of essential service, and indispensable in every case. In some instances, where the delirium has been high, and no relief experienced from the blisters to the back of the neck, we have seen decidedly good effects from the application of them to the calves of the legs. In many instances, we have been obliged to repeat the epispastics a second and third time. Pediluvium and strong sinapisms to the feet, have never been omitted. In cases of diarrhœa, the starch, and other mucilaginous injections, and in many cases, strong stimulating clysters, were used. Where the patient was evidently sinking, strong stimulants, *cautiously used*, have been administered. The tincture of artificial musk, as prepared by Dr. Bartley, we have found, in this stage of the disease, a valuable medicine. Washing and sponging the surface of the body with cold water, either alone, or combined with vinegar or alkaline salts, has served the purpose of promoting diaphoresis, when the skin has been hot and dry. In the convalescent stage, the bark and wine were very liberally administered. These were com-

menced with as soon as the black coat began to slough from the tongue. Our patients have generally borne them in large quantities after the subsidence of the fever. Gentle exercise, riding, and a generous diet, have, at this period of the disease, almost uniformly restored them to health. The appetite was then very keen, and in many instances insatiable: relapses have occurred from over-eating.

I have said nothing of blood-letting in the treatment of this disease. From some instances of fatal and pernicious consequences resulting from this practice, we have not ventured upon it in more than one or two instances. The symptoms very rapidly run on to typhus and putrefaction, and bleeding has generally accelerated its progress. In some of the upland towns, as the weather grew milder, the complaint became more inflammatory, and bleeding was resorted to, very extensively, with evident good effects; some of the patients were bled eight or nine times, and finally recovered. With us, in the valley, as the warm weather increased, the complaint became less inflammatory and the fever more mild.

These were the principal remedies resorted to by us in the treatment of this complaint. Different remedies were, however, administered to different patients, according to the variation of the symptoms.

The cases of *scrofula* and *diabetes* have been much benefited by the use of the phosphas ferri,

commencing in doses of fifteen or twenty grains, and gradually increasing to a drachm, three times a day. This valuable medicine is coming into great repute in the cure of cancerous,* uterine, scrofulous and cachectic complaints.

A case of *hydrothorax* terminated fatally. The patient, of the age of fifteen, was attacked with ascites, for which the operation of paracentesis was performed. The ascites was cured, but he was immediately attacked with hydrothorax, and lived but a few months. On dissection, both cavities of the thorax were found to be filled with encysted water. The cysts were very firm and large. The right cavity was rather the most distended. The right lobe of the lungs was almost entirely absorbed; the small portion which remained, adhered very firmly to the mediastinum. The left lobe, except being considerably inflamed, was nearly natural. The pericardium adhered very firmly to the heart, and its cavity was obliterated. The liver and spleen were much enlarged. The latter was irregular and rugose.

A case of *poison* occurred by taking a tincture and some bitters of a travelling empiric. The patient, an aged lady, but naturally of a pretty robust constitution, immediately after taking the tincture, was seized with indescribable distress in her stomach, attended with stricture, dryness of the œsophagus and fauces, cold chills, succeeded by hot flashes, and a cold clammy sweat. She was ex-

* See Carmichael on Cancer.

tremely delirious through the night; an obstinate diarrhœa came on, which was preceded by violent pain in the bowels and head; the pulse was remarkably quick and feeble. Petechiæ, of a red, fiery kind, succeeded. An emetic and cathartic followed by diaphoretics, ultimately restored her to health. The tincture was not accurately analyzed; but judging from the taste, it was composed of a sweet vegetable poison.

The case of *permanent stricture of the œsophagus*, terminated in death. It was occasioned by the patient, a child about two years old, drinking a large quantity of strong ley of ashes. This operated, upon the œsophagus, like scalding water, and left a perfect callus, with great constriction, upon the surface of the passage. The patient was never afterwards able to swallow any thing but liquids, and even these, with the utmost difficulty. We were never able to introduce the smallest bougie into the stomach. An eminent physician once attempted to introduce a silver bougie, with a small knob upon the end, and supposed he had succeeded. The same operation was performed by the father of the child, with the same apparent success. It lived about nine months, and died emaciated. Upon dissection, the passage was found very crooked, small, and the sides shrivelled. The œsophagus, at the bend, was found to be perforated by the silver bougie; which, instead of being directed into the stomach, was passed into the cavity of the thorax. There was found in the cavity of the tho-

rax, upon the right side, about half a pint of purulent matter and serum.

The case of *deafness* was singular in its cure, if not in its origin. The patient was instantaneously taken deaf from blowing his nose. He continued in this state nearly a month, notwithstanding the most powerful remedies were carefully employed. Walking from his house to his barn, on a cold morning, he accidentally slipped. The shock which the fall gave the system, completely and instantaneously cured him of his deafness, without any bodily injury.

We have had three cases of *hydrocapitis infantum.* One has been cured by the use of pressure and a lead cap, and the external use of the sal. ammon. lotion. Our great dependence has been upon equable firm pressure on the tumour. One is in a hopeful state of convalescence, and the third, we fear, will terminate fatally. The tumour, in all, discovered itself at, or soon after birth.

Tic douloureux, *dolor faciei*, *morbus crucians*, or *neuralgia.* We have a severe case of this painful affection. The patient supposed it to be an obstinate case of tooth-ache, for which she had two teeth extracted, with no alleviation of her distress. It originated in the seventh pair of nerves, where it comes out with the parotid duct, and extended to all the ramifications of the pes anserinus. It might, in fact, be said to affect the whole of the branches of the portio dura. The least touch, breathing the cold air, or even noise, affected her. Stimulating appli-

cations, epispastics, and the volatile liniment gave her but little relief; she, however, found more benefit from blisters than from any previous applications. Happening to see in the last number of the New-England Journal of Medicine and Surgery, a notice of tic douloureux, in which the alkohol ammoniatum was strongly recommended, it induced further research. Happily, in the 17th volume of the European Medical and Physical Journal, we discovered that Dr. Samuel Fothergill, one of the present physicians of the Westminster General Dispensary, had used the caustic volatile alkali with success, in an obstinate case of this complaint, after almost every other remedy, excepting dividing the nerve, had failed.

Reflecting further upon the subject, he says: "In a former Report, I stated the good effects of aqua ammon. puræ, in the cure of tic douloureux, I have now considerable satisfaction in being enabled to record another instance in which that painful malady yielded to a similar practice, adopted in consequence of the observations which I then made. The patient was the wife of a medical gentleman residing in Westminster; she had tried all the remedies usually recommended, but experienced no relief till she took the aqua ammoniæ puræ." The Doctor commenced this practice, from having heard that the above remedy had been very successful in restoring people who had been bitten by the Cobra de Capello, the poison of

which seems to act immediately on the nerves. *Vide the above Journal pages 379 and 579.*

Having such respectable authority, we were determined to commence the volatile alkali, before resorting to the operation of dividing the nerve. We began by giving it, as directed in the New-England Journal, in doses of thirty-five drops at the commencement, three times a day, increasing a drop at a dose until she was relieved. By using the above remedy a few weeks, the painful affection entirely left the face. After suspending the medicine, for about a week, she was attacked, thought not severely, with a nervous affection of the side. She is now upon the use of the same medicine, with tonics.

Amongst the cases of *fracture* was a compound one of the tibia and fibula, occasioned by the patient's being thrown suddenly from a wagon. This was on Saturday evening. The bones were reduced; she complained of but little pain, and this was confined to the limb. Before the reduction, the wound bled profusely: she was comfortable the next morning, and was removed home from the place of the accident, which was three miles, upon a litter. Shortly after her arrival, she complained of great pain and soreness in her limb, which made it necessary to remove the dressings. The next morning she began to grow comatose, and lay in that situation till Tuesday afternoon, when she expired. The weather was extremely warm, and putrefaction extended so rapidly, that examination,

by dissection, was not resorted to, much to our regret. It is very remarkable that she never experienced pain in any other part than her limb. She was bled twice to the extent of nine or ten ounces at a time.

Variola vaccina. We have had some difficulty this year, in making the genuine infection take. Some cases, which appeared to be spurious have been tested, and the disease proved to be genuine. There has been a great variety, in different patients, in the time in which the infection has taken. In some instances, it has evidently shewn itself on the second day, in others, not under a week. The symptoms, in some, have commenced in a week, in others, not under fourteen days. Some have been inoculated twice in the same arm, the second time several days from the first, from supposed failure, and the operation from the second, has excited the first into action, and the pustules have increased regularly and equally. In some of the supposed spurious cases, there has attended an eruption of the skin, which has occasioned many parents to distrust the matter. Children, however, at this time of year, (August and September,) are peculiarly exposed to this eruption, and it is probable that they would have experienced the complaint, had it not been for the inoculation of the Kine pock. It is necessary to be cautious not to take matter from such cases.

CASE

OF

GUN-SHOT WOUND,

IN

MAJOR GENERAL RIPLEY,

BY

E. L. ALLEN, SURGEON U. S. INFANTRY,

COMMUNICATED

BY VALENTINE MOTT, M. D.

Fellow of the Society.

Read the 5th December, 1815.

During the desperate action of the sortie from Fort Erie, 17th September, 1814, Major General Ripley, being engaged with the enemy at a few few yards distance, received a wound in the neck, and fell apparently dead. I reached him a few minutes after he fell; he was speechless, his countenance ghastly, and a profuse hemorrhage issued from the wound; but the immediate vicinity of the enemy forbid any attempts to relieve him until he was conveyed within our works. When he reached camp, he could articulate faintly, his countenance was pallid, and his limbs cold. The hemorrhage continued, though with less violence; compression upon the orifice of the wound to check

it, produced alarming symptoms of suffocation. Having been for several hours exposed to a heavy rain, his clothes were drenched through. He was placed in warm blankets, and frictions with dry flannels, and cordials, were employed to fan the feeble spark of life.

The wound was from a large musket ball entering on the right side, one and a half inches below the angle of the jaw, opposite the thyroid cartilage; it carried away the anterior edge of the sterno-cleido-mastoideus muscle, exposing the carotid artery, passing transversely across the neck, injuring in its course, the lower extremity of the pharynx; it made its exit behind the left mastoid muscle and carotid, lower than where it entered.

The carotids, the larynx, and the spine, escaped. The ball must have passed near the left vertebral artery, and, from the direction, as well as consecutive symptoms, severely injured the cervical nerves.

He spit some blood, and deglutition was extremely difficult. He complained of torpor and uneasiness in both arms, but neither at that, or at any subsequent period, complained of pain in the wound. In a few hours, febrile symptoms appeared. The surface, the arms more particularly, was preternaturally hot. A sudorific anodyne was ordered, but he passed the night with anxiety and restlessness.

Second day from the wound. The pulse having risen and the febrile symptoms increased, he was bled, and took a saline cathartic, which dimi-

nished the nervous irritation, and afforded some repose.

Third. During the last night, the disagreeable symptoms were aggravated. He spent the night with insomnia and mental abberration, complained much of uneasiness and pain in his arms, and kept moving them from place to place. Febrifuge and anodyne medicines were given without producing the desired effect.

Fourth. Spent a restless night. The orifices of the wound are inflamed and tumefied. The tumefaction over the right carotid is so great, that the pulsation is distinctly visible across the room. From this symptom, some surgeons feared secondary hemorrhage when the sloughs separated. The torpor and uneasiness of the arms continue notwithstanding the use of camphorated anondyne embrocations. Was again bled, and directed cooling aperient medicines.

Seventh. Suppuration has commenced, and the symptoms of general fever and irritation are mitigated. Deglutition is now performed with little difficulty.

Tenth. Suppuration has become profuse; the pus is laudable; several portions of cloth carried in by the ball come out with the sloughs. The febrile symptoms, uneasiness, and pain in the arms, are diminished.

Eighteenth. While the suppuration was free, the arms were less painful; but now diminishing, they are more troublesome.

Twenty-second. The suppuration has decreased; the granulations look healthy; and the orifices of the wound are gradually closing. The pain in his arms is very severe, especially during the night, which he spends with insomnia, and his appetite and general health are impaired. Occasionally his right shoulder is seized with spasms, which are very distressing. Externally, stimulating linaments, and friction were ordered.

Twenty-sixth. He sleeps very little during the night. The moment he begins to dose, a spasm in his shoulder, arouses him to a sense of distressing pain. He is very restless, tossing his arms from place to place, his strength is reduced and is much emaciated. His tongue is covered with black sordes. He takes wine and tonic remedies sparingly. Ordered tincture of cantharides to be applied to his arms.

Thirty-second. The disagreeable symptoms continue with unabated rigour. The orifice of the wound, where the ball passed out, has healed.

He takes wine freely, and a tincture of bark and brandy occasionally. A blister was applied to the right arm, and the tincture of cantharides ordered to be diligently applied to both.

Thirty-eighth. The blister, in some degree, mitigated the violence of the pain in the right shoulder, otherwise, the symptoms are less favorable. He is much emaciated; the arms more so, in proportion to the remainder of the body. The right shoulder, the seat of the spasm, is very much emaciated.

The supra and infra-spinatus muscles are wasted, leaving the spine and costæ of the scapula projecting. He now takes wine and brandy freely, with bark, and other tonics. He bears a large quantity of stimulus without producing a perceptible effect. His arms are partially paralized, and the pain continues severe.

Forty-fifth. A free use of stimulants and tonics has improved his general health; and a succession of blisters rendered the spasms less violent. His arms remain painful, and motion irksome. He was carried in a litter a few miles with great difficulty; a jar or sudden motion produced a violent accession of pain. Occasionally he suffers excruciating pain in his shoulders.

Both hands and one arm are insensible; he can with difficulty grasp a body in his hands, but is insensible of its presence.

Seventy-fifth. General health much improved; painful symptoms diminished; but the torpor and insensibility of his hands increased.

He has taken stimulants and tonics very liberally. Sudorific anodynes, aperients, &c. have been employed as the symptoms required.

One hundredth. His appetite and general health much improved; can now feed himself, which paralysis of his arms has for a long time prevented; the pain occasionally recurs with less violence. Set out to travel by easy stages; the exercise improves his health.

One hundred and thirtieth. Arrived at Albany; tra-

velling by slow stages. The natural functions are restored, but the pain and uneasiness in his arms continue in a slight degree. The torpor and insensibility of his hands have not yet disappeared.

Six months. He has nearly recovered from every bad symptom. His arms are exquisitely sensible to any change in the atmosphere, and a rigidity of the neck remains.

Query. Were not the severe symptoms in the right shoulder, produced by a wound of the spinal accessory nerve; and was not the profuse hemorrhage from a wound of the trunk or a principal branch of the superior thyroidal artery?

OBSERVATIONS

ON

CERTAIN CAUSES WHICH INFLUENCE

THE

DECARBONIZING FUNCTION

OF THE

LUNGS.

BY CHARLES E. PIERSON, M. D.

Corresponding member of the Society.

Read the 5th of March, 1816.

In the various departments of natural knowledge, the influence of the late rapid advancement in chemical science, has been extensively felt; particularly in its application to the physiology of the animal body. It has shed light on the functions of many of the organs of the human system; but on none so much, as on those of the lungs. Since the properties of the atmosphere have been succesfully investigated, our knowledge of the phenomena of respiration has rapidly advanced. Without going into detail, it will be sufficient for the purposes of this essay, to give an abstract of the most popular opinions at the present day. This will consist in the result of the labours and experiments

of Messrs. Allen and Pepys; the conclusions of which are as follows:

1st. The inspired air imparts none of its oxygen or nitrogen, to the blood.

2dly. The blood loses a principle, viz. carbon, which by its union with the oxygen of the inhaled air, forms carbonic acid gas.

3dly. The watery vapour, found in expired air, is the serous discharge from the surface of the bronchial tubes.

4thly. The blood derives heat from the decomposition of the inspired air; all the latent heat of the oxygen gas not being necessary to the formation of carbonic acid gas.

5thly. The dark colour of the venous blood, is owing to its being surcharged with carbon; and the bright scarlet colour of the arterial blood, to its parting with carbon in the process of breathing.

The conclusions of these gentlemen, as to the products of respiration, are not widely different from those of Crawford, Lavoisier, and Davy; who supposed also the most prominent circumstance of respiration, to be the separation of carbon from the blood; but as to the quantity of oxygen consumed, the place of its union with the carbon, and the source of the aqueous vapour, there is a great disagreement.

It would then appear, that the principal design of respiration is, to separate from the blood a matter which, if retained in any considerable quantity,

is extremely deleterious to life; but which, in a certain limited quantity, is harmless.

Carbon, as a part of the chyle, enters largely into the blood; and but a small portion of it seems to be expended in the process of nutrition and secretion: the remaining part is conveyed out of the system, chiefly through the medium of the lungs—it is therefore an excretion.*

Having given this preparatory sketch of the functions of respiration, I shall endeavour in the subsequent part of this essay to support the following hypothesis, viz. That there are certain circumstances affecting respiration, which subject the human system to a morbid retention of the carbon of the blood, and thereby produce derangement and disease.

No reference will be made to those sudden and absolute interruptions of the functions of the lungs, which constitute asphyxia and suffocation. The causes to be considered, are those which are gradual and extensive in their operation.

The perfect or imperfect decarbonization of the blood, obviously depends upon one of the three following circumstances, viz. the velocity of its cirlation; the state of the atmosphere inhaled; and the freedom with which the air is admitted to the extreme pulmonary vessels. Those causes, which

* The design of the surplus carbon, is, perhaps, to promote the conversion of chyle into perfect animalized blood; and to assist in effecting those decompositions and new combinations which occur in nutrition and secretion.

influence the circulation of the blood, may all be sufficiently exemplified by the effects of *exercise*.

I. THE EFFECTS OF NEGLECT OF EXERCISE, ON THE EXCRETION OF CARBON FROM THE LUNGS.

That a deficiency of bodily exercise, causes debility and disorder of the animal system requires no proof. On the contrary, it is well known that considerable exercise is indispensably necessary to preserve health. The experiments of Lavoisier, Seguin, and others, have proved that in exercise, there is a great augmentation in the discharge of carbon from the lungs, in respiration. It will be sufficient to mention one of these experiments, as the others were followed by the same result. Seguin examined his own respiration, in a state of rest, and found, that 1344 cubic inches of oxygen gas were consumed per hour. After briskly exercising for a quarter of an hour it was found, that he consumed oxygen at the rate of 3200 cubic inches per hour, which is 1856 cubic inches more than when in a state of rest.

Now a volume of carbonic acid gas, is precisely equal in bulk to that of the oxygen gas, which is requisite for its formation; consequently, in this experiment, there was separated from the blood in exercise, as much more carbon, per hour, than is evolved during rest, as enters into the composition of 1856 cubic inches of carbonic acid gas. Taking this fact for granted, it cannot be considered alto-

gether fanciful to suppose, that protracted inactivity of body, should be productive of some inconvenience to the system; solely from an undue accumulation of carbon; an excess of which, it is well known, produces deleterious effects. That tolerable health requires some daily exercise; that good health requires much, and that luxuriant and vigourous health and strength of body, are only found where there is habitual and laborious exercise, are facts too well known, to require proof. It appears then, that the quantity of carbon, evolved from the lungs, is greatly increased by exercise; and, as increasing vigour of health, follows with "equal step," is it not a rational inference, that this condition of the body may be ascribed to the decarbonized state of the circulating mass? On the other hand, when exercise is almost entirely neglected, must it not follow, (reasoning from the above experiment,) that some accumulation of carbon will take place in the blood, and that too in sufficient quantity to create the well known train of disorders resulting from such neglect? If this accumulation of carbon be denied, it must be on the supposition, that its admission into the circulation, by the lacteals, is diminished, exactly in proportion, to its excretion from the lungs. This precise balance, I think, cannot exist. It would be inconsistent with the uniform and independent action of the lacteals; and contrary to any opinion, on the subject, that has hitherto been offered. I would suppose then, that the purity of the blood, as

respects the carbonaceous matter, may vary within a certain healthy range: but that this range is confined to narrow limits; for it does not require a total suspension of exercise to carbonize and debase the blood, below its healthy range; but even the moderately indolent are injured. It is well known that the blood of persons, of sluggish and inactive habits, is of a darker colour, than that of those who lead more active lives. The following fact, related by M. Bichat, shows how dependent the colour of the blood is on the causes which accelerate or retard the circulation.

He says, that he has often observed the blood, which flowed during a surgical operation, change its colour to dark, and again from that to red; according as the circulation was affected by the fears, faintishness, struggles, or cries of the patient.

If then, a surcharge of carbon follows a protracted and habitual inactivity of body, may we not infer, from our knowledge of the consequences of the more obvious retentions of this principle, that a morbid action of the system must result; and that the long train of affections, that follow a sedentary life, may be ascribed to this cause? We might mention general debility, dyspepsia, with its innumerable concomitants; the evil consequences of obstructed viscera, diminished secretions, obesity, &c.; all of which originate in a depressed and enfeebled state of the whole system. The experiments of Bichat, all show that a similar condition of body is induced by a redundancy of carbon in

the circulation. He proved, that, by injecting venous blood into an artery, its action was diminished in strength; and the part of the body, which it supplied, greatly enfeebled. He also directed blood from a vein into an artery, by establishing a communication between them, and the consequence was a sedative effect on the organ, approaching to complete paralysis. By means of a canula and tube, he connected the crural artery of one animal, with the carotid of another, and by producing a partial asphyxia in the latter, the crural artery of the former was made to receive dark venous blood, which produced a temporary suspension of the motions of the leg.

If it were necessary, many additional facts might be adduced to prove, that the effects of carbon, in unusual quantities, are deadly sedative. Every physician must have observed that a well formed thorax and capacious lungs are invariably attended with a ruddy countenance, and a vigorous constitution; on the contrary, that a contracted thorax, and confined state of the lungs, are the concomitants of a feeble circulation, a palid or bluish skin, purple lips, and a weak and emaciated body. Observe also the meager, and half-animated frame of the unfortunate *puer cœruleus*.

The sedative effects of carbon may be produced by its direct operation, or it may operate indirectly, through the medium of the blood, which will thereby be rendered inadequate to the purposes of health. In either case, it cannot be surprising, that

the operation of a principle, so pernicious to animal life, should be followed by disease, and even by death. As the system is placed in numerous situations, and exposed to the action of such a variety of agents, it is truly wonderful that this decarbonizing function—the most essential to animal existence, should be so correctly performed, as not to occasion disease more frequently.

It is admitted by the best surgeons, that in ulcers, exercise is a valuable remedy; especially when much motion is not thereby produced in the part affected. It is successfully used in many of the foreign hospitals. Dr. Jackson tells us, that those British soldiers, who had been wounded in battle, and were turned out of the military hospital and followed the army, soonest recovered of their wounds; and it was remarkable, that if they delayed only a few days on the road, their wounds ceased to heal and grew worse. The ulcers which are most benefited by this remedy are, those of weak action, whose granulations are relaxed, and of a dark purple colour.

Again, Bichat, in his experiments, to ascertain the cause of death from asphyxia, observed, that from any interruption of the breathing, as in partial asphyxia, the granulations of the ulcer became of a livid colour; which proves that this colour was owing to a redundancy of carbon in the blood: these granulations frequently die and slough off: and is it not highly probable that the healing of ulcers is much retarded

by neglect of exercise, occasioning an accumulation of carbon in the blood? Who has not observed the salutary effect of exercise in the cases of the convalescent, the dyspeptic, and the phthisical? Who has not seen the enervated melancholic, and the bed-ridden victim to vapours, and nervous derangement, when forced into a state of locomotion, against his own will, regain his health, when medicine had been administered in vain.

There is a wonderful promptitude in the restorative effects of exercise, which can, in no way, be so rationally explained, as on this hypothesis of the respiratory functions. It may be objected, that persons have been long confined with wounds and fractures without exercise, and apparently, without suffering the consequences above enumerated; but patients under such circumstances, unquestionably preserve better health, than they otherwise would do, from taking but a small quantity of food. Many instances, however, might be adduced, where, by neglect of exercise in such complaints, there has been a subsequent train of diseases that could be referred to no other cause.

Among the disorders arising from neglect of exercise, I have mentioned *obesity*. We frequently see persons of lean habits, who lead very inactive lives, suddenly acquire a great accession of fat, which I have called a disease, and such it surely is; the fibrous or fleshy parts of the body are rather lessened than increased. The fat is a useless incumbrance—a mere excresence, or morbid deposition of sub-

stance, which the system, from its being subjected to long inactivity, has not power to expel, by the natural outlet, to prevent more formidable diseases. It is deposited in receptacles where its presence is comparatively less dangerous. The constituent principles of fat are such as corroborate this opinion. It is known by chemical analysis to be composed of four-fifths of carbon, and the remaining part of oxygen and hydrogen.

As the quantity of carbon evolved from the lungs, is very much diminished when the body is at rest, and, in the mean time, a new substance is formed, composed principally of carbon, without any change in the quality or quantity of the chyle, have we not good reason to conclude, that they stand in the relation of cause and effect? This conclusion is strengthened by the fact, that the aqueous exhalation from the lungs, which is also diminished, is composed of the elements which are the other constituents of fat. If we examine the different classes of the animal creation, we shall find, that they have uniformly more or less fat, in proportion to their accustomed exercise, and to the superior order of their respiratory organs. Infants have a large proportion of fat till they are old enough to throw it off by exercise. Poultry when confined, will fatten in two-thirds less time, than when suffered to run at large. Fishes and amphibious animals abound in fat much more than birds and quadrupeds, the lungs of the latter being of a superior order.

II. THE EFFECTS OF A RAREFIED STATE OF THE AIR ON THE QUANTITY OF CIRCULATING CARBON.

The rarefied state of the air we breathe, may depend, either on its high temperature, or on a diminution of weight in the atmospheric column. I shall therefore, observe a correspondent division in treating of its consequences.

1. *Effects of a heated Atmosphere.*

It has been proved by chemical experiments, that the quantity of oxygen consumed, or of carbon discharged, is in an inverse ratio to the temperature of the air respired. This is exemplified in the following experiment. The quantity of oxygen consumed by a man in an hour when breathing air of the temperature of 54 degrees, was found to be 1344 cubic inches: when the air was raised to 79 degrees only 1210 cubic inches of oxygen gas were consumed, in the same length of time: making a difference of 134 cubic inches.* It has been observed that carbonic acid gas is exactly equal in volume, to the oxygen gas consumed in its formation; therefore, by elevating the temperature of the air we breathe from 54 to 79 degrees, the blood parts with as much less carbon per hour as entered into 134 cubic inches of carbonic acid gas. If

* See Doctor Crawford's experiments on this subject.

there be such a variation in the amount of excreted carbon in variations of temperature, it is natural to inquire if the system does not suffer from the retention of this principle, when exposed for a long time to an atmosphere of high temperature. Does the Pennsylvanian or Englishman, remove to the hot climates of the south, without suffering inconvenience, or disease, from the above cause? Do his lungs emit 3216 cubic inches of carbonic acid gas less per day, than they do in the same season in his own country, and yet without detriment to his system? It cannot be supposed that the quantity of carbon, prepared and admitted into the circulation, is diminished in the same ratio; because the food is principally vegetable, in warm climates, and contains vastly more carbon than animal food, which is taken in greater quantity in the north.* And, as the ingress of carbon is not diminished, we conclude, that it must, in part, be conveyed out of the system by other avenues, where there is so great a failure in the functions of the lungs. Let us consider what these decarbonizing emunctories are.

It has been satisfactorily proved, by the experiments of Count De Milly, Cruickshanks, and the French chemists, that the skin is an auxiliary to the lungs; but, as the quantity of carbon discharged,

* That more carbon is conveyed into the blood by vegetable than by animal diet, is evident from the fact, that the former increases the fat of the body much more than the latter. The adipose matter of carnivorous animals is very small compared with that of animals which feed on vegetables. Carbon is the principal ingredient in fat, while it is scarcely found in the other solids of the body.

in this way, has not been precisely determined, the subject will not be considered in detail.

There are many facts which lead us to believe, that the liver is concerned in this office. Heat greatly increases the secretion of bile; bilious complaints are endemic in all hot countries. Strangers, especially they who have resided for a time, in such countries, are apparently surcharged with bile though they may have been so fortunate as to escape bilious diseases. We cannot account for the prevalence of bilious diseases in hot climates, and in hot seasons in our own climate, if we exclude the agency of heat.

In the productions of the mortal epidemic and endemic bilious fevers of hot countries, miasmata may be chiefly concerned; but the heat may be the sole agent in giving the disease its bilious character.

The heat, with the bile it generates, oppresses and weakens the system; by which, a predisposition to fever is created: the miasmata, acting merely as the exciting cause. The liver, having been previously more exposed to the predisposing cause, than other parts of the body, will be most affected; and give rise to the leading symptom of what is, very properly, called bilious fever. Nor are fevers of this character confined to hot climates; towards the end of hot summers they are frequently prevalent in our own. Our summer heat is often equal to that of the West Indies, and when the heat is lasting, it produces an uni-

versal bilious diathesis; so that almost every fever is attended by bilious vomiting and purging; not only in cities, but also in the most healthy situations in the country.

I shall proceed to examine some of the facts which favour the opinion, that the liver co-operates with the lungs in decarbonizing the blood.

1st. *The bile abounds in carbon.* It has been proved, by Fourcroy, Blumenbach, and Murray, that bile contains a greater proportion of carbon than any other animal fluid.

2d. *The bile is secreted from the venous blood.* It is an important consideration that all the other secretions, excepting bile, are formed from the arterial or florid blood; that this alone is made of the venous or carbonated blood. The intention of this has been a source of much speculation. And the reason of it was not known until it was discovered by modern chemists that the blood, in the vena porta, is loaded with carbon. This state of the blood was supposed to be owing to its sluggish movement through the veins of the porta, in consequence of their great capacity.

But, are we to consider this structure to be a special provision in favour of the liver, and the parts to which it sends its bile, or, that the liver is an organ, made to serve the system of the porta especially, and the whole circulating system occasionally? I am disposed to adopt the latter

opinion; and assign to the liver, the office of carrying out of the system, its excess of carbonaceous matter; thereby acting as an auxiliary to the lungs.

There are several considerations which favour this opinion. I have said, that the skin performs a function similar to that of the lungs. This being the case, it follows, that the venous blood, which comes from every part of the surface of the body, will be less dark and carbonated, than that which is returned from the central or visceral parts of the system.

The porta collects the blood that returns from the stomach, spleen, omentum, the whole of the intestinal canal, and the mesentery; a surface much greater than that of the whole body.

This blood has undergone no change at the extreme vessels, like that which takes place on the skin; and is accordingly found to be darker, and to contain much more carbon than the rest of the venous blood.

The liver is known to separate this carbon, and to discharge it in the composition of bile, of which it is the chief ingredient. Have we not reason, therefore, to believe, that an important use of this viscus is, to decarbonize the blood? If it be said, that this doctrine of the function of the liver, degrades this organ, from the rank of a secreting, to that of an excreting one, it is answered, that this conclusion does not follow; for it is not denied that in the process of digestion and chylification, and

in its operation on the bowels, bile possesses the importance of a peculiar secreted fluid. In what instance, then, is the simple, but salutary economy of nature, more beautifully exemplified than in the process of forming, and the no less important manner of disposing, of the bile!

I infer, that the liver acts as an assistant to the lungs in decarbonizing the blood, from the absolute necessity of such an assistant.

The lungs, in the performance of this function, are affected by external circumstances; and are influenced by causes which are extraneous, and over which the system has no controul. These are exercise, and the variations in atmospheric weight and temperature. Now, when we consider how precise the system is, with respect to the quantity of circulating carbon it will contain, without offence; and how liable this quantity is to fluctuate, from unavoidable causes, we should expect to find in the animal economy a contrivance, analogous to what chemists call a valve, or tube of safety; which would permit the escape of surplus carbon, and save the system from fatal injury. Such an office, I conceive the liver to perform.

From what has been said, is it not rendered highly probable, that the liver is an organ, of more consequence than has generally been supposed; and that, besides the relation in which it stands to the intestines, it also co-operates with the lungs. It is also probable, that, in the fœtal state, the liver supplies, in a measure, the place of the lungs.

The meconium, is, beyond doubt, produced by the liver, and is found in the intestines, during almost the whole period of gestation. By chemical analysis, it is found closely to resemble the adult bile, and to consist chiefly of carbonaceous matter. It is said, that the blood returned from the placenta, by the umbilical vein, is more florid than that in the umbilical arteries. This may be the case, and yet the liver perform the office of lungs; for the business of decarbonization may be, but in part, executed in the lungs, while the liver does the remainder and perhaps the chief of it. Richerand is of this opinion.

I will close this subject, respecting the fœtal liver, by asking the following questions.

Why does the liver secrete a bilious matter in the fœtus, when it can answer no purpose in the intestines, for they are not brought into action, until after birth? Why is the liver of the fœtus so over proportioned in size, to the rest of the body? Why is the blood of the umbilical vein made to circulate through the substance of the liver, before it reaches the heart, and is distributed over the whole system?

Among the effects of a heated atmosphere on the constitution of man, the change of complexion in those who visit hot climates may be mentioned.

This change is obvious during a short residence in such climates: those who spend a life there, have their skins changed to a tawny or brown colour; while such as have descended from an ancestry, which had for many generations, been ex-

posed to the intense influence of a vertical sun, are of a black colour. That a change of complexion, may be thus effected, is supported by the most respectable authority.

Blumenbach supposed, that by the action of the sun on the fat under the skin, a carbonaceous matter was separated; giving the skin a dark tinge. But it is more probable, that this dark pigment is deposited under the cuticle by the blood. If the action of the sun, or of heat, on the surface, was the only cause, parts which are excluded from this action, would not be discoloured.

But it is known to anatomists, and was first observed by M. Mickel, that the medullary substance of the brain of the negro, is much darker than that of the European; and that a cut surface of it, exposed for a little while to the air, turns as white as the medulla of the European. Here there is no fat, and the sun's rays cannot act. The disappearance of the colour, on exposing it to the action of the air, makes it extremely probable that carbon is the colouring matter.

II. EFFECTS OF RAREFIED AIR FROM DIMINISHED WEIGHT OF THE ATMOSPHERIC COLUMN.

Since there are frequent variations in the weight of the atmospheric column, as appears from the changes in the barometer, there must be a corresponding change in the density of the air; and consequently, a variation in the quantity of oxygen

contained in a given bulk. As this variation is not inconsiderable, I shall briefly inquire, if such a rarefied state of the atmosphere, as occurs within the ordinary range of the barometer, may not be so unfavourable to a due decarbonization of the blood, in respiration, as to occasion bodily derangement.

The accounts which æronauts and those who have ascended to the tops of high mountains, have given of their sensations, sufficiently prove, that the air of the higher regions is incapable of satisfying the demand of the lungs for oxygen.

Sir William Hamilton experienced great difficulty of breathing, and debility, on Mount Ætna.

M. Saussure while on the summit of Mont Blanc, "was extremely oppressed in his breathing; his strength was also exhausted to such a degree, that he seemed to require four times as long a space to perform some experiments, on the top of the mountain, as he would have done at the foot of it."

The air in high regions is not rendered thus unfit for respiration by an undue proportion of its constitutent parts; for it has been satisfactorily proved by the analysis of air, brought from great heights in bottles, that they exist in a uniform proportion at all heights.

At the medium level of the earth's surface, where the weight of the air fluctuates between 28 and 31 degrees of the barometer, the effects of a light atmosphere are similar, though less in degree. When the mercury sinks to 28 degrees, indicating, what is

vulgarly denominated a heavy air, but which is in fact the reverse, our feelings are materially changed. Some complain of lassitude, debility, and low spirits; others of head-ache, loss of appetite, drowsiness, and vertigo. The circulation, and other motions of life, are depressed and enfeebled; we feel as if our bodies were subjected to the action of some sedative or debilitating agent: the phlegmatic, hypochondriac, and asthmatic, suffer most.

These effects have been imputed solely to the loss of atmospheric pressure. That this loss of pressure may assist in producing them is very possible; but we have no proof, nor is it probable, that it is the only cause.

The interruption which occurs in the decarbonizing function of the lungs, in a light atmosphere, furnishes a more adequate explanation.

It has been proved by experiment, that by rarefying the air only to the degree to which the atmosphere, is occasionally brought, in the ordinary changes of the weather, that an animal in an air pump receiver consumes but one half the quantity of oxygen, which it does at the common density.* From this it would follow, that at 28 degrees of the barometer, the blood loses but half the quantity of carbon which it does at its medium height; that is, if we admit an exact analogy between the rarefied air in the receiver, and the rarefied atmosphere; and between the changes in respired air in the

* Minutes of the society for the promotion of philosophical experiments.

lungs of the animal, and those of man. If then, so remarkable a retention of carbonaceous matter, takes place in a light atmosphere, how is it possible, that the body should not feel inconvenience from it? It has been proved that a superabundance of carbon in the circulation operates as a sedative, diminishing or prostrating the energy of the motions of life. We should, therefore, expect, a priori, that this condition of the atmosphere, would occasion disorders, and precisely such disorders as have been mentioned.

Asthmatic paroxysms are evidently sometimes induced by this cause. Every asthmatic finds a light atmosphere his bane.

When the blood is not sufficiently decarbonated in the lungs, it is retarded in the extreme pulmonary vessels; and its flow back to the heart, is slow and languid. The uneasiness thus created, throws the lungs into spasms.*

That such are the causes of asthma, appears evident from the manner and time of its attack; the paroxysm generally invades at night, when the suspension of all exercise favours a carbonated state of the blood.†

* Bree on Asthma.

† From this account of the exciting cause of asthma, we should, a priori, pronounce the inhalation of oxygen gas, or highly oxygenated air, to be a beneficial remedy in an asthmatic paroxysm. Numerous trials have proved the fact. Dr. Beddoes says, "no sooner does the oxygen gas touch the lungs, than the livid colour of the countenance disappears; the laborious respiration ceases, and the functions of all the thoracic organs go on easily and pleasantly again." Dr. Townsend speaks well of this remedy. See Bree and Floyer on Asthma.

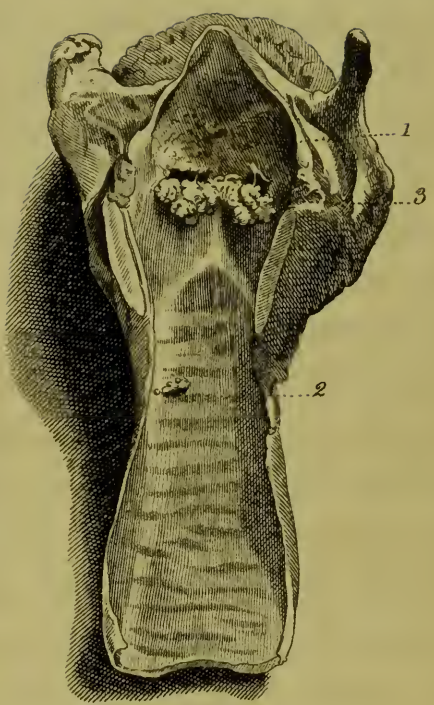
III. IMPERFECT DECARBONIZATION OF THE BLOOD FROM MUCOUS OBSTRUCTION IN THE LUNGS.

Among the causes of defective decarbonization of the blood, I may mention mucous matter in the bronchial tubes, which prevents an extensive application of the inspired air, to the pulmonary blood. Dr. Bree speaks of this as a cause of pituitous asthma; but still, he thinks the irritation of the mucus on the bronchiæ to be the chief cause. But when it is considered, how constant and abundant, in such cases, this mucus is, and how large a portion of the bronchial surface is excluded from the action of the air, we cannot conceive it possible, that the blood can be sufficiently decarbonated. This state of the system proves that it is not. The blood of the asthmatic is usually dark; his circulation slow and feeble; there is a great deficiency of bodily strength and vigour; the heat of his body is much below the common temperature; the extremities are always cold; the complexion is pale, or dark and livid; in short, he experiences to a degree, all that variety of distress and infirmity, to which the unfortunate blue boy is a victim.

But what is perhaps still more in point, is the colour of the matter thrown out of the lungs.

Bree says, he has frequently seen the mucus, expectorated in asthma, of a black colour.

Morgagni, in his dissections of those who died of asthma, speaks of collections of a black sub-



DISEASED LARYNX.

A. Anderson del. & sc.

stance in the lungs, which, on being rubbed in the fingers, appeared to consist of a carbonaceous powder.

Dr. Morton observed such as laboured under pituitous consumption, to expectorate a black mucus in the morning. Willis takes notice of the same thing.*

Peripneumonia is attended with more debility, more malignancy, and is more apt to sink the system into a typhus diathesis, than the pleuritis vera, or other local inflammations.

May not this arise from the obstruction which the mucus, lining the bronchial surface, affords to the necessary decarbonization of the blood?

To conclude, If the foregoing observations should be thought to rest upon an untenable hypothesis, rather existing in imagination than in reality, let it be remembered, that there are few physiological truths that have not gradually emerged from doubts and darkness; and that the clearest elucidations have often been the result of the rudest precursory suggestions. This subject was primarily contemplated with a belief that there were truths lurking in it, which had not been investigated; and if they are not rendered conspicuous in this essay, the opinion of the writer has not been weakened by the inquiry.

* This view of pituitous asthma, enables us to account for the very remarkable efficacy of emetics in this disease, as well as in consumption. They throw out the mucus, and instead of weakening, they invigorate the whole frame.

OBSERVATIONS

ON

CYNANCHE LARYNGÆA,

WITH CASES,

BY JAMES C. BLISS, M. D.

Fellow of the Society.

Read the 5th of March, 1816.

Cynanche Laryngæa is a disease which has excited but little attention in this country; and it appears but very recently to have claimed the particular consideration of the physicians of Europe.

This may, in part, be attributed to its not being of very frequent occurrence; and, what appears still more probable, its having been generally confounded with other diseases, which it in some respects resembles.

The most correct description of it, which I have met with, is contained in a paper read before the Medical and Chirurgical Society of London, by Dr. Farre, and published in the third volume of its Transactions.

A thorough knowledge of this disease is rendered important, from the insidious nature of its

attack, the rapidity of its course, and its fatal tendency. A knowledge of it is also important, from its frequently, if not generally, attacking persons of mature age; and of course, at the most useful period of life.* There is one other circumstance, which, if I am permitted to judge, renders its investigation peculiarly interesting to the American physician; which is, that in common, with most of our acute inflammatory diseases, it is much more rapid in its course here, than in Europe.

This variety of cynanche, has probably been generally confounded with cynanche trachealis, or with cynanche pharyngæa; it being attended with symptoms, which, in some respects, characterize both those diseases. Notwithstanding this fact, however, its symptoms are sufficiently distinct, and peculiar, to leave little room for error, with those acquainted with its nature, and who are accustomed to notice diseases attentively.

This complaint commences with uneasiness in the larynx, hoarseness, and febrile symptoms: at the accession, a slight difficulty is also experienced in swallowing; and, if the fauces be examined, there will be a slight appearance of inflammation. As the symptoms progress, acute

* In the New England Journal of Medicine and Surgery, vol. 1st, Dr. Jackson has given an account of the dissection of four children, who appear to have died of this disease. No mention, however, is made by Dr. Jackson of the patients having been affected with symptoms in any respect differing from croup, previous to death. It would be interesting to know, whether, in these instances, there was any difficulty in swallowing in the course of the disease.

pain is felt posterior to the thyroid cartilage; the respiration becomes difficult, and wheezing; the articulation indistinct, and hoarse.

Deglutition is extremely difficult, or altogether interrupted; the patient being in danger of suffocation whenever this act is attempted. On examination, at this time, the epiglottis will appear to stand erect, and not to close the rima glottidis, which explains this difficulty. The febrile symtoms are now much increased: the face becomes turgid, the pulse is greatly accelerated, both in force and frequency; and the heat is manifestly greater than natural. This stage of the disease is not of very long continuance; the respiration becomes still more difficult and distressing; the powers of life begin to decline; the pulse diminishes in strength; the heat becomes less; the features assume a ghastly appearance, and the patient dies of suffocation.

From this very brief description of symptoms, it will appear evident, that this disease is not referrible to any species of Dr. Cullen's genus Cynanche; and a more manifest difference is exhibited, in the dissection of those who have fallen victims to it.

The following cases will, probably, lead to a more correct conclusion respecting this malady, than a more laboured description of it.

Wm. Dickson, seaman, a patient in the N. Y. Hospital, aged 36 years, of a robust habit, had a slight

soreness of the throat, on the 27th of January; but so inconsiderable, that he did not think it of sufficient importance to mention it. Between five and six o'clock, in the morning of the 28th, I was called into the ward to see him. His pulse was hurried, and small; and he complained of chilliness. Together with these symptoms, he had difficulty in swallowing: one of the tonsils and velum pendulum palati being slightly inflamed; and he also complained of pain, referring to the parts posterior to the thyroid cartilage as its seat.

The inflamed tonsil was scarified; and he had the throat rubbed, externally, with aqua ammonia.

Antimonial powders and calomel were directed, with the view to their action on the stomach and skin, as well as the bowels.

On visiting him at 2 o'clock, P. M. he was labouring under great difficulty in respiration, with a wheezing noise, resembling that which attends croup. He was very hoarse, and could only speak in a whisper.

The power of deglutition was entirely lost; and attended with a violent struggle at every attempt. The face was turgid with blood, and swollen; the pain in the throat severe; the skin moist; the pulse full, hard, and frequent. He expectorated, with difficulty, a considerable quantity of ropy mucus.

By some negligence, on the part of the attendants, he had taken none of the powders, directed him in the morning.

Upwards of thirty ounces of blood were immediately taken from the arm; the quantity being regulated, not only by its effects on the pulse, but likewise the urgency of the symptoms. The arterial action was very much reduced by the bleeding; but without any very material mitigation of the local symptoms.

Flannel dipped in hot aqua ammonia, was applied to the throat, and the bowels opened by an enema. But little benefit appeared to be derived from these remedies. The warm bath was next resorted to; which had the effect of inducing a copious perspiration: but notwithstanding, the other symptoms appeared as urgent as before. At six o'clock, six ounces of blood were drawn from the throat, by means of cupping: a blistering plaster was also applied on each side of the larynx.

At 8 o'clock, the fever was evidently diminished, the face less turgid, and the pain in the throat less considerable; but the patient was still incapable of swallowing. At this time, he was directed to inhale the vapour of hot water.

This remedy was used, assiduously, during the night, and with evident benefit. In the morning, his skin was moist, and he expectorated, with pain and difficulty, a considerable quantity of viscid phlegm. The pain in the throat was still considerable; and the voice remarkably hoarse. The bowels were twice opened, in the course of the day, by the use of injections, and the inhalation

of the vapour was still continued. No material change in the symptoms, was evident during the day.

On the 29th, in the morning, he was able to swallow a small quantity of fluid; and the symptoms, in general, were better.

He was directed antimonial powder and calomel, in divided doses, till the bowels were opened.

On the 30th the patient was much relieved: and on the first day of February, the disease had entirely left him.

The following case was drawn up by me, at the request of Dr. Hamersley; and was by him communicated to the editors of the Medical Repository, and published in that work in February, 1815.

William Potter, aged 28 years, a seaman, was admitted into the N. Y. Hospital on the 29th of December, 1814, with a fever of the remitting type. His skin was of a yellow colour, and bowels constipated. He had also slight catarrhal symptoms, with some soreness of the throat.

He was convalescing from his fever, when, on the evening of the 13th of January, whilst the physician was visiting the ward, he complained of a sore throat, hoarseness, and cough. But these symptoms did not give rise to any particular alarm, on account of his previously having had an affection of the throat.

The next morning, the house physician, Mr. Helme, being confined to his bed by illness, I was requested to see him.

He complained of extreme difficulty of breathing, and had the peculiar wheezing and cough, of croup. His voice was remarkably shrill, and it was with great difficulty he could articulate. He referred to the larynx, as the seat of his distress. The fauces were slightly inflamed; but deglutition was performed with very little difficulty. The pulse was frequent and full, but not corded. The skin hot, and the tongue covered with a white fur. The face rather flushed.

His symptoms appearing so exceedingly urgent, the jugular vein was opened, and about twenty ounces of blood drawn. An emetic was given, with a view of vomiting him; and although the patient took to the amount of three drachms of ipecacuana, and twenty grains of emetic tartar, in divided doses; and notwithstanding mechanical irritation of the fauces was repeatedly employed, very little vomiting was excited. Little more was ejected, than the drinks which he had taken, to quicken the operation of the emetic medicine. The operation of vomiting, however, had the effect of producing a moist state of the skin, and of rendering respiration rather less difficult.

After this, a piece of flannel, dipped in hot aqua ammonia, was applied to the anterior part of the neck, which soon caused vesication of the skin.

The patient was also directed to inhale the vapour of hot vinegar and water.

About 11 o'clock, the emetic medicine produced several very free evacuations from the bowels; the pulse, at this time, was very much reduced. The difficulty of breathing, however, was not in the slightest degree diminished, but exceedingly distressing to witness. At this time a large epispastic was applied to the upper part of the chest.

Between 12 and 1 o'clock, I was again summoned to the ward, and found the patient apparently in the agonies of death. The respiration horridly difficult; the countenance livid and shrunk; and the eyes, as it were, starting from their sockets. This paroxysm increased, till the patient was seized with convulsions. The pulse ceased to beat, and respiration was momentarily suspended. From this state he recovered in a slight degree. At this time, the operation of tracheotomy was proposed; and the assent of Dr. Hamersley, the attending physician, having been obtained, I immediately performed it: being assisted by Mr. Inderwick, of the United States' navy.

During the operation, the patient had another violent paroxysm of difficult respiration; and, to the by-standers, appeared to be dying. A gum elastic tube was introduced into the opening, and after the blood, which had escaped from the wound, had been thrown from the trachea, the patient breathed with tolerable ease.

It became necessary several times in the course of

the afternoon, to remove the tube, and introduce a fresh one; on account of its becoming obstructed by the mucus excreted from the trachea.

A decoction of seneka was now directed for the patient: but every attempt at swallowing was followed by a fit of coughing, and his drinks appeared to find their way into the trachea. On examination of the throat, it appeared that the epiglottis was thrown back towards the apex of the tongue, so that the larynx was not perfectly closed in the act of deglutition. The patient at times breathed with considerable ease, through the afternoon and evening; at other times, from the mucus becoming accumulated, the respiration was rendered more difficult, till relieved by a fit of coughing. In the forepart of the evening, a vapour bath was employed for his relief. But although the operation had evidently prolonged his existence, yet it appeared the disease was not subdued, and we were doomed to witness the inefficacy of our remedies. The patient expired about fifteen minutes after 10 o'clock in the evening.

On dissection, it was observed, that beneath the muscles covering the larynx, there was a slight effusion of coagulable lymph. The upper part of the pharnyx and the fauces, exhibited traces of inflammation. The epiglottis gave evidence of having been highly inflamed. Beneath the membrane covering this part, on either side, there was a considerable effusion of serum, in distinct cavities or sacs.

This effusion was so considerable, as to revert the epiglottis, and prevent its closing the glottis. This, as well as other parts of the larynx, was covered, on its internal surface, by a number of dark coloured spots, which gave it a mottled appearance.

The whole of the larynx and trachea showed a high degree of inflammation, on their internal surfaces. The mucous membrane, lining the larynx, was remarkably thickened, and beneath it there was a very considerable serous effusion. So considerable was this thickened state of the membrane and the effusion beneath, that the rima glottidis was almost completely closed.

This circumstance, probably, gave rise to the symptoms of suffocation, which occurred previous to the operation having been performed. Besides these appearances, there was a considerable quantity of tenacious mucus adhering to the inner surface of the wind-pipe throughout its course.

The following minutes of the dissection of a patient who died of Cynanche Laryngæa, were obligingly communicated to me by Dr. Ives.

"The subject of the dissection, was an athletic, middle aged, black man. The day preceding his death, he had been intoxicated, and received some blows from one of his companions.

He was attacked at night with sore throat, difficulty of breathing and swallowing, a shrill cough, without heat of skin, or apparent fever. The

principal medicine used for his relief, was an emetic. He died twelve hours after the attack.

In consequence of the sudden and suspicious manner of his death, the body was examined the same day, by request of the Coroner.

There were no marks on the body of mechanical violence, or of disease in the cranium or abdomen; but on opening the larynx, the traces of inflammation were too conspicuous to leave any doubt of the cause of his death.

The epiglottis was very much thickened and enlarged, and of a livid or mottled hue.

The membrane covering the arytenoid cartilages, was so much swollen that the rima glottidis was completely closed. The membrane, lining the larynx and trachea, was highly inflamed through its whole course; and the disease extended into the bronchia. Between this membrane and the larynx, was an effusion of lymph, which appeared partially to detach it. The pharynx was somewhat inflamed, but much less than the larynx. The examination was made by Drs. Mott, Stevens, Quackenbos and myself."

From the detail of the above cases, there can be little doubt with regard to the nature of this disease. It is not the violence of the inflammation alone, which gives rise to its extreme danger, but its situation in a part important to the function of respiration. It is true, an unnatural impulse is given to the general circulation, and the patient is affected with inflammatory fever: but its effects on

the system at large, do not appear so considerable, as in some other of the phlegmasia; where the local disease is much less, and in parts of much inferior importance to life. It is very possible that in some instances of this disease, its progress may be so gradual, as to induce suffocation without any material impetus being given to the circulation.

This malady is always dangerous, and therefore, remedies of the most vigorous character are imperiously required for its removal.

In habits which will admit of it, blood-letting, both general and topical, ought to be employed. General blood-letting should be carried so far as to reduce the increased action of the arterial system in every instance; and, if necessary, it should doubtless be repeated, again and again, till this object be effected. Much advantage might naturally be expected from local bleeding; and as good leeches are difficult to be obtained with us, cupping can be substituted. Cups can be readily applied on either side of the larynx and trachea, on the anterior part of the neck.

From the well known efficacy of emetics in other forms of cynanche, and particularly in croup, to which this disease is most nearly allied, much advantage will doubtless be derived from their use. In a case which fell under my observation during the last autumn, where the symptoms were well marked, although the disease was in its incipient stage, an emetic appeared to be of decided advantage. Emetics are entitled to our consideration, not only

from their action on the larynx; but also, from their general influence on the system, in lowering arterial excitement, relieving spasm, and promoting perspiration.

Blisters can, without doubt, be applied with advantage in this disease, as well as in those analogous to it.

The warm bath, also, may, under certain circumstances, be of service in producing general relaxation, and inducing perspiration. With these remedies, cathartics should likewise be employed.

When our remedies fail of their desired success, and the patient is threatened with suffocation, it then becomes a question, whether an opening ought to be made into the trachea, in order to prolong the patients existence, and give him an additional chance for life.

This operation in croup, is now, pretty generally, considered of little or no avail. It is true it has been successful both in Europe and in this country; but it has, in almost every instance, proved wholly inefficacious. The reason of this is perfectly obvious on dissection after death. The disease is not confined to the larynx and trachea, but extends into the minute ramifications of the bronchia, and not unfrequently affects the lungs also. This circumstance shows, conclusively, that opening the trachea can have no influence in arresting the progress of the disease, or in prolonging life. In those cases in which patients have recovered after the operation has been performed, probably, either the layer

of coagulable lymph, which is thrown out on the surface of the lining membrane, was confined to the larynx, or the disease was of so mild a nature, as not to forbid the recovery of the patient under the use of ordinary means.

Both in croup, and cynanche laryngæa, death appears to ensue from the atmospheric air not being admitted to the cells of the lungs, in order that it may produce those changes on the blood, which are essential to life. But the obstruction, which takes place, has a very different seat in the two diseases. In the cynanche laryngæa, it is confined to the rima glottidis; whilst in croup, it appears to arise from the bronchial vessels and cells of the lungs being filled with effused lymph.

Suffocation does, perhaps, in some instances, occur from the membrane formed in croup obstructing the larynx; but, even in these instances, the obstruction is not confined to this part alone; whilst in the majority of cases, if we are permitted to draw our conclusions from the symptoms which immediately precede death, as well as the appearances on dissection, the immediate cause of death, is the obstruction in the bronchial tubes and cells of the lungs.

From a consideration of facts, relative to the seat of obstruction in cynanche laryngæa, much is to be expected from the operation of tracheotomy. Although the trials of this operation have been few, yet the partial success which has attended them, gives reason to believe, that some reliance is to be placed on it, in these otherwise hopeless cases.

In the instance above detailed, there were several circumstances which operated to prevent success. In the first place, the patient was too much exhausted previous to the performance of the operation; and the tubes which were inserted into the trachea, were not properly adapted to permit a sufficiency of air to pass through them. From the same cause, likewise, they became frequently obstructed by the tenacious mucus excreted from the trachea; and respiration was frequently interrupted for a short time.

From these causes, the patient had not the full benefit of the operation. But, notwithstanding all these disadvantages, life was evidently prolonged ten hours and half. In a case recited by Dr. Percival, of Dublin, the patient survived four days after the operation; although it was performed at a protracted period of the disease, and under very unfavourable circumstances.

These cases prove that life may be prolonged by the operation, and afford strong grounds to conclude that, under more happy circumstances, the patient may be restored to health. In order that this desirable end may be effected, the operation should be performed whilst the vigour of the constitution is sufficient to maintain the powers of life until the local disease is subdued, and the part is enabled to assume its natural function.

One other circumstance ought to prevent our delaying the operation too long, viz. the danger of the disease extending to the trachea, bronchia and lungs.

OBSERVATIONS
ON THE EFFICACY OF EMETICS
IN
SPASMODIC DISEASES;
WITH
AN INQUIRY INTO THE FINAL CAUSE
OF
SYMPATHETIC VOMITING.

BY JOSEPH M. SMITH, M. D.

Fellow of the Society.

Read the 5th of March, 1816.

THE object of the following observations, is:

First.—To show the inefficacy of the common mode of treating the spasmodic symptoms of hysteria and epilepsy.

Secondly.—To exhibit the superiority of *emetics* as antispasmodics.

Thirdly.—To inquire whether their use is not founded on the laws of the animal economy: and

Fourthly.—To notice some of the diseases, in which they may be successfully employed.

I. The common mode of treating the spasms of hysteria and epilepsy has long been established. Among the antispasmodics, most generally used

in these diseases, are, assafœtida, castor, æther, tincture of valerian, and opium.

In many cases of hysteria, it has seemed to me doubtful, whether the above medicines mitigated, in the least degree, the violence of the spasms. I have exhibited them in liberal doses, and patiently awaited the result of their operation; but, to my disappointment and mortification, I have frequently witnessed the continuance of the fits, in defiance of all their antispasmodic properties. In most instances, the convulsions would doubtless terminate favourably, after a time, were no remedies employed; and I apprehend, that their spontaneous cessation has frequently been ascribed to medicines, which, in reality, produced little or no effect.

I would not presume to say, that the medicines, arranged in the class of antispasmodics, are useless or inert. Some of them, indeed, possess active qualities; and may be used with advantage, in cases where there is spasm. But in a disease so violent as convulsive hysteria, I dare venture to appeal to every unbiassed clinical observer, for the verity of the assertion, that no reliance can be placed on any ordinary antispasmodic but opium. That this will, in some instances, put a period to the fits, is evident from experience; but it is also evident, that in others, particularly those in which there is plethora, and the spasms are violent, considerable doses may be administered and

frequently repeated, without the symptoms being palliated; nor will these yield until a sufficient quantity has been given to induce a state of coma.

In plethoric habits, it is customary to bleed before administering opium. This plan is highly judicious. Bleeding will diminish local, as well as general plethora; lessen the impetus of particular determinations, and generally render the system more susceptible of the operation of medicine. Venesection, however, when it is most required, is sometimes either impracticable or extremely inconvenient, on account of the intractable struggles of the patient, during the paroxysms, and the shortness of the intervals. When the operation is performed, and the other means duly employed, it is expected, that the convulsions will soon cease; but how often does it happen, that several hours elapse before they subside?

The above observations are equally applicable to epilepsy, the clonic spasms of which are similar to those of hysteria, and demand the same treatment, notwithstanding they may arise from very different remote causes. Indeed, the remote causes of both disorders are generally disregarded, so long as the fits succeed each other with rapidity; the first object being to remove the spasms.

II. The experience I have had of the utility of emetics in hysteria and epilepsy, enables me to assert, with confidence, that they are more effica-

cious than any remedy ordinarily employed in convulsions.

The rules to be observed in their administration are few and simple. If the paroxysms quickly succeed each other, the emetic should be given in divided doses during the intervals. No alteration of the symptoms will take place until the occurrence of nausea; after which, the spasms will be found less violent, and the patient will complain of sickness and langour. As the nausea increases, the spasms become still weaker, and the intermissions longer, and as soon as full vomiting occurs, the paroxysms cease to return. Such is the manner in which the convulsions generally disappear. In some cases, I have seen the fits terminate before vomiting was excited; and in others, noticed several slight ones after the contents of the stomach were ejected; but in no instance have I known vomition to fail in producing the desired effect. In general, between the fits, patients are rational; but it sometimes happens that they are delirious or comatose. When this is the case, there is some difficulty in administering the medicine; but in common, sufficient can be given to answer the intention. Under these circumstances, the first favourable change is a perfect restoration of sense and voluntary motion; the patient expressing great uneasiness about the stomach.

Should the patient be unsually plethoric, and especially if there be high arterial excitement and a determination to the head, it will be proper, if

practicable, to take from the arm, a quantity of blood, anterior to giving the emetic. This mode of proceeding will render the convulsions more manageable, and obviate any injurious effects which might result from the efforts of vomiting. Simple fullness of habit, if it be moderate, will not demand the use of the lancet, until after the spasms are allayed.

Should the convulsions manifest a disposition to return, a dose of laudanum or some other anti-spasmodic, will, in general, prevent them.

The exciting causes of hysteria and epilepsy are perhaps as multifarious, as those of any other disease; but however various they may be, no discrimination is necessary in determining on the employment of emetics; provided there is energy enough in the system to withstand their debilitating operation, and there is no particular organic affection.

The superiority of emetics, as remedies in the treatment of convulsions, consists: 1st, *in the facility with which they may be administered;* 2dly, *in the certainty of their operation;* 3dly, *in the speedy manner in which they check the fits;* *and* 4thly, *in their producing, ultimately, no disagreeable effects.* When opium is employed, either alone or in combination with other medicines, the quantity given is frequently so considerable, that its final consequences, such as drowsiness or stupor, head-ache, anorexia, &c. often continue for some time after the disease is terminated.

The efficacy of the means, above recommended, for the removal of convulsions, is fully evinced, not only by my own observation, but by the experience of several of my medical friends; some of whom have constantly had recourse to them for years, and uniformly with success. If this practice is more general among physicians than I have a knowledge of, it is singular that we do not find it particularly described in medical books. Practical writers, both ancient and modern, all concur in directing the medicines denominated antispasmodics. Some authors, however, incidentally mention the benefit to be derived from emetics; and indeed, a few cases are recorded which show their efficacy. But these seem to be related solely with a view to prove that vomiting will remove convulsions, when they arise from indigested sordes and other irritating matters in the stomach and duodenum. Although it is obvious, that in some instances, convulsions do arise from derangement of the stomach, yet it may be doubted whether all the cases alluded to originated from that cause. These cases may be found in the respective works of Hoffman, Van Sweitan, Whytt, Ferriar, and Fothergill. It is here proper to state, that in a paper on the advantages of vomiting in pleurisy, &c. by Dr. Blatchly, published in the Medical Repository, vol. 2, New Series, notice is taken of the utility of emetics in spasmodic diseases. This gentleman appears to be apprized of the fact, that emetics will allay convulsions occasioned by other

causes, than offensive matters in the stomach. The following are his words: "In the convulsions of children, I have found no medicine equal to emetics for removing the fits. In epilepsy, I pour down a solution of tartarized antimony; open a vein before it can operate, and then lay an epispastic between the shoulders. The instant the emetic begins to nauseate, and the person vomits, it relaxes and removes the paroxysm; it will even unlock the jaw in tetanus." The common antimonial emetic is always preferable to any other.

In what manner do emetics produce their good effects? Every pathological student is acquainted with the remarkable *sympathies* which exist between the stomach, and the other parts of the body. Sometimes constitutional derangement arises from a primary affection of the stomach, and at others, the stomach becomes disordered in consequence of irritation or morbid action in a distant part. The effects produced on the constitution by the operation of an emetic are, lassitude, anxiety, a sensation of faintness, and great relaxation of every part of the body, but more especially of the muscular fibres. This relaxed condition of the system continues as long as there is any degree of nausea; and probably for some time afterwards. In convulsions, the muscles act involuntarily, and with prodigious violence: convulsive action is, therefore, a state opposite to morbid relaxation; and consequently, when the latter pre-

vails, the former cannot exist. And now, as *morbid relaxation* is the constant result of nausea and vomiting, may we not conclude, that emetics produce their good effects in spasmodic diseases, by inducing such a state of the muscular fibres? Surgeons, knowing this effect of emetics, frequently employ them, in order to relax the muscles, which resist the reduction of dislocations.

III. The preceding observations lead us to inquire, whether there is any foundation in nature, for the use of emetics, as antispasmodics.

However strenuously some pathologists may combat the doctrine of the *vis medicatrix naturæ*, it must be admitted, that the laws of the animal economy frequently give such a determination to the course of disease, as tends to eventuate in health. The terms *vis medicatrix*, *restorative power of nature*, and their synonyma, well express the operation of these laws; and may therefore be appropriately employed in the subsequent investigation.

We have seen that relaxation is the effect of vomiting, *artificially* excited; and consequently, we are induced to believe that *sympathetic* vomiting, when it occurs in acute diseases, is designed to relax the whole, or a part of the system, in order to accomplish some particular purpose. The correctness of this opinion may be rendered apparent, by adverting to the nature of those diseases in which sympathetic vomiting is a remarkable, and characteristic symptom.

Jaundice is frequently the consequence of obstruction in the biliary ducts, occasioned by gall stones. When the disease arises from this cause, the symptoms are peculiar and severe: an acute and lancinating pain is felt at the place of the obstruction, and the patient is affected with incessant nausea and vomiting. The ductus communis choledochus does not readily dilate, to enable a calculus to advance towards the duodenum; but on the contrary, interrupts it by a spasmodic constriction. The vomiting is commonly considered as an effort of nature to dislodge the calculus by violently agitating and compressing the gall-bladder and duct. The chief indication of cure, in the treatment of this disease, is, to remove the spasmodic stricture, and relax the duct: hence it is rational to suppose that should an effort be made by nature, it would be directed to the accomplishment of that intention. If, therefore, the disturbance of the stomach which occurs in this complaint, results from an exertion of the *vis medicatrix*, we cannot avoid concluding, especially when we recollect that vomiting and relaxation are allied as cause and effect, that nature's real design is to remove constriction and render the duct easily distensible. The duct being relaxed, the mechanical effects of vomiting may prove beneficial.

The vomiting, arising from the irritation of a calculus in the ureter, has ever been regarded as one of the most remarkable sympathetic phenomena that appear in diseases. The ureter is a canal of

a muscular structure; and, therefore, will become spasmodically affected whenever a calculus is lodged in it. The pain in this disease is extremely violent: in the most severe attacks, the concretions are doubtless so large, that considerable dilatation of the canal must take place, before they can descend to the bladder. Here, as in jaundice, the only means which can afford relief, are such as are relaxing: accordingly, the remedies universally prescribed, are, venesection, the warm bath, opium, fomentations, &c. Although we are frequently unable to trace the operations of the system to their efficient and final causes; yet, when we see conspicuous phenomena occurring, which seem to have no essential connexion with the existing disease, we are inclined to presume that nature is endeavouring to restore the system to health. In the complaint now under consideration, we cannot explain why the stomach is so invariably affected, unless we resort to the *vis medicatrix*. If relaxation of the spasm, and dilatation of the ureter, are required, and if the antecedent views are correct, we can have no hesitation in declaring, that the vomiting proceeds from the exercise of the restorative power of nature.

In like manner, we may account for the vomiting that attends colic and inflammation of the bowels. In both of these diseases, there is always spasm of the intestines; and it is upon this, that the constipation principally depends. In the former, the pain is purely spasmodic; but in the latter, it is

the consequence of inflammation, connected with spasm. It cannot be alleged that the vomiting is solely intended to eject offending matters; because it occurs where there is nothing of an irritating quality in the stomach. In general, the first remedies employed in the treatment of colic, are such as are calculated to allay the spasms; and in enteritis, the same means are indicated after reducing the inflammation by bleeding, blistering, &c. If, in these cases, the vomiting is not an effort of nature to relax the spasms, are we not ignorant of the cause of its occurrence?

To what has been said, we may add, that in hernia, so long as the fæces find a ready passage through the protruded intestines, the stomach is not disturbed; but whenever incarceration occurs, which, in effect, is similar to spasm, nausea and vomiting arise, in order, as we presume, to produce that degree of relaxation which is necessary to remove the strangulation.

It may be objected, that if vomiting is designed to produce relaxation, it would generally be adequate to the end. Most persons practically conversant with diseases, must have seen cases of icterus calculosus which were relieved by spontaneous vomiting. A case of this kind, recently came under my observation, in which it seemed to be evident, that the pain abated in consequence of relaxation of the duct; for, after every fit of vomiting, the pulse, skin, aspect, and feelings of the patient, all indicated a general reduction of the tone and vigour of

the system. In some instances, where the calculi are unusually large, or of an angular form, vomiting, by compressing the part affected, may be productive of injury. Such an occurrence, however, does not militate against our hypothesis; it evinces that the constitution, acting according to established laws, attempts to relieve itself, regardless of the dangers that spring from adventitious circumstances.

Whether emetics should be used in cases of calculi of the ureter, as well as in jaundice from biliary concretions, is a question worthy of examination. In both diseases, it is obviously no less important to mitigate the pain, than to relax the parts affected. If emetics be administered, even where there is spontaneous vomiting, considerable time will frequently elapse before the requisite degree of relaxation is produced. When, therefore, it is probable that vomiting will not immediately, or in a short time, relieve the pain, the preference should be given to the usual remedies; more especially, as opium, by its anodyne qualities, will diminish the sensibility of the system, and thereby alleviate the sufferings of the patient.

The pain of colic is rarely increased by vomiting. Cases somtimes occur which are palliated by it, though a cure cannot be expected until the remote causes are removed. In enteritis it is manifestly prejudicial, in consequence of the abdominal parietes compressing the bowels, which are so sensible, that the slightest pressure is intolerable.

Were the operations of the system directed by a discriminating and infallible intelligence, they would never be injurious; but, as this is not the case, they sometimes pursue a course that leads to inevitable destruction. In the instance before us, to allay the morbid action of the intestines, they aggravate the malady, and hasten the fatal catastrophe.

Fever generally commences with chills, or rigors, a shrinking of the external parts of the body, and constriction of the skin. During the first stage, also, nausea and vomiting are common symptoms, particularly in that form of the disease termed intermittent. If we contemplate for a moment, the sympathy which obtains between the stomach and the surface of the body, we shall be induced to believe that the affection of the former depends upon the state of the latter: indeed, the reasonings of Dr. Cullen in favour of this opinion, appear to be conclusive. This distinguished pathologist remarks: "It is probable, that the vomiting, in the cold stage of fever, is one of the means employed by nature, for restoring the determination to the surface of the body." But, as he previously observes, "that during the cold stage of fever, there seems to be a spasm induced every where on the extremities of the arteries, more especially of those upon the surface of the body," would he not have been more correct, had he said, that the vomiting is designed to relax the spasmodic constriction? That this is truly the intention of nature, seems evident

from the fact which he cites from Sydenham, viz. that, in the attack of the plague, a vomiting happens which cannot be overcome until external means are applied to produce sweat; that is, to relax the spasm existing on the surface. This view of the subject affords a happy explanation of the manner in which emetics prove efficacious in intermittents, when administered a short time before the accession of a paroxysm. The vomiting they excite, relaxes the surface and other parts of the system, and thereby prevents the recurrence of the premonitory symptoms.

Vomiting sometimes attends hysteria and epilepsy. May it not, in these cases, be considered as an effort of nature to remove the convulsive paroxysms? Why vomiting should generally occur, when certain parts of the abdominal viscera require relaxation, or are affected with spasm, and only occasionally when the muscles of voluntary motion are convulsed, may be explained, by supposing that, as an effort of the vis medicatrix, it is more readily and actively excited by morbid action in organs essential to life, than by disease in parts comparatively unimportant.

Hitherto we have noticed the sympathetic vomiting which is the consequence of disease. We shall now investigate the final cause of its occurrence in pregnancy, which cannot be considered a morbid state. This investigation will be the more interesting, as it may illustrate what has already been advanced, and at the same time disclose some

views of the animal economy that are novel and important.

It is generally believed that the vomiting with which women are affected, during the first months of utero-gestation, is intended to answer some useful purpose. Some writers consider it as the means instituted by nature for removing, or obviating plethora; the existence of which they imagine might endanger the life of the embryo. Although it is calculated to answer that end, yet we cannot presume this to be the only advantage resulting from it, since we know that simple anorexia is sufficient to reduce, as well as to prevent a fulness of habit.

No sooner is the ovum lodged in the uterus, than this organ begins to enlarge; adapting its capacity to the increasing bulk of the embryo and its involucra. Here, a query presents itself, viz. By what power are the dimensions of the womb thus wonderfully altered? Anatomists inform us, that in the unimpregnated state, its substance is of a compact cellular and muscular nature; the muscular fibres being more clearly seen when the organ is distended. To suppose that the embryo is alone a sufficiently distending power, would be fanciful and nugatory; inasmuch, as it is evident, that, if the womb had not a disposition or aptitude to enlarge, it would expel the ovum as certainly as it does coagula of blood; and how could it be otherwise, since it is a law of muscular parts to contract whenever a distending force is applied to them?*

* "This distention" says Dr. Denman, "is evidently not mechanical from the enlargement of the ovum, but from the accession of a new principle; for

As the effect of vomiting is relaxation, and as relaxation of the uterus is essentially necessary to enable the ovum to increase in size, may we not infer with the highest probability of truth, that the vomiting of pregnant women is chiefly intended to promote that object. In proof of this conjecture, several arguments may be offered.

In pregnancy there are frequently evident marks of general relaxation; such as pallidness of countenance, emaciation, flaccidity of the flesh, and debility. If these phenomena are produced, either wholly or partially, by the affection of the stomach, the inference is irresistible, that the same cause must diminish the natural firmness of the uterus; and perhaps the effect on this organ is greater than on any part of the system, on account of its being the source, from which, by the intervention of direct sympathy, arises the affection of the stomach.

The vomiting is sometimes so constant and severe, that medical interference is necessary. Under these circumstances, experience has demonstrated that the remedy, most productive of relief, is bloodletting. It is probable, that the vomiting seldom becomes excessive, unless the uterus distends with difficulty. If this be true, the manner in which venesection proves efficacious is obvious. Diminishing the volume of fluids, aids the operations of nature, or, in other words, so relaxes the uterine

the uterus is never fully upon the stretch, like a bladder inflated with air, but relaxed in such a manner as to be apparently capable of bearing the increase of the ovum without inconvenience."

parietes, that the vomiting subsides as a matter of course: there being no longer a necessity for its continuance.

Among the signs which indicate the death of the fœtus is, a cessation of the vomiting. This circumstance evinces that the disturbance of the stomach is serviceable in promoting the distension of the womb. The death of the fœtus renders a further enlargement of that organ unnecessary, and the vomiting being no longer useful, ceases.

The disappearance of vomiting, before the fourth or fifth month, may perhaps be considered as subversive of the theory advanced. But when we reflect that the womb at the period of quickening has lost its original firmness and become lax and yielding, we cannot be surprised that the sickness should subside. It must here be remembered, that we do not contend, that the vomiting is exclusively the cause of the distention of the womb; for, there is, unquestionably, a principle in the economy of generation which causes and regulates its gradual developement. During the first months it is presumed that this principle is incapable of producing the requisite degree of laxity; but when this is accomplished by the aid of vomiting, its operation is alone sufficient to effect the subsequent distention.

In some instances, the vomiting continues through the whole course of pregnancy; and in others, after being suspended for a while, it returns. In cases of the former kind, the principle,

just mentioned, operates imperfectly, or with deficient energy; and consequently the relaxing power of vomiting remains indispensable: in the latter, the sickness recurs in order to promote the distention, which, for some cause or other, has become difficult.

Vomiting sometimes occurs during the process of parturition. Here, it may be regarded as necessary for the purpose of relaxing the parts which resist the expulsion of the fœtus. The advantage resulting from it has been particularly noticed by Denman. "The power exerted by the uterus," says he, "aided by that of the abdominal muscles and diaphragm, being insufficient for the purpose of dilating the os uteri, or that part becoming unusually irritable by the frequent impressions made upon it; then, by its consent with the stomach, extreme sickness or vomiting is brought on, sometimes after every pain, by which the labour is very much forwarded; one fit of vomiting, according to popular observation, doing more good than several pains."*

The principles disclosed in the foregoing disquisition, derive a degree of support from the consideration, that no other theory explains, with equal felicity, the design of sympathetic vomiting. Their extensive application, and the practical instruction they afford, strongly recommend them to our confidence. They teach us that emetics are appropriate remedies for spasm.

* Introduction to the Practice of Midwifery.

IV. Besides the spasmodic diseases already mentioned, there are others in which emetics may be advantageously employed. The principal of these I shall briefly notice.

1. *Retention of urine from spasmodic stricture of the urethra.* In many instances of this complaint, it is probable that emetics, without the co-operation of other means, will effectually remove the stricture; but should the case be urgent, it may be a more eligible plan to bleed the patient until there is a disposition to syncope; to place him in a warm bath, and at the same time administer the vomit. Should these means fail to procure relief, recourse may then be had to opium, the catheter, bougie, &c.

2. *Puerperal convulsions.* Although depletion by the lancet is requisite in this disorder, especially if the patient be plethoric, yet it is conceived that, if emetics were employed, bleeding, to the extent it is generally carried, would be unnecessary. It may be objected, that an emetic would be a dangerous expedient at, or near the time of parturition. No danger results from the spontaneous vomiting which so frequently occurs during pregnancy and labour; nor do physicians hesitate to prescribe them in the course of gestation; why then should we fear to administer them in cases of puerperal convulsions?

3. *Convulsions of Children.* These in general proceed either from difficult teething, or morbid matters in the stomach and bowels; if from the

former, we may give an emetic and immediately after divide the gums; if from the latter, a vomit will allay the spasms, cleanse the stomach, and frequently evacuate the bowels; thus removing at the same time, the disease and its occasional causes.*

4. *Tetanus.* In respect to violence and fatality, tetanus bears the same relation to other spasmodic diseases, that plague does to the milder forms of fever. Notwithstanding its nature has been the subject of much research, it yet remains involved in obscurity; and an uniform mode of treatment has never been established. Whatever view we take of the disease, our object must be to relax the spasms. As we have seen that emetics by their general relaxing operation, are capable of removing the convulsions of hysteria and epilepsy, and have reason to believe that nausea and vomiting are the means employed by nature to relax the muscular fibres, when morbidly contracted, we are induced to conclude, that, in tetanus, the use of emetics is founded on correct principles and may therefore be employed with advantage.

* Domestic Encyclopedia, Art. Convulsion. Medical Repository vol. 2, N. S. p. 382.

A

CASE OF SUDDEN DEATH,

FROM A

RUPTURE OF THE LEFT *VENTRICLE OF THE HEART*,

WITH REMAKRS.

BY VALENTINE MOTT, M. D.

Fellow of the Society.

Read the 5th of March, 1816.

INSTANCES of rupture of the heart, from violence or disease, are seldom met with in practice and less frequently recorded in medical writings. The following case of rupture of the parietes of the left ventricle, from an abscess, with a view of the parts, is respectfully presented to the society; as an interesting specimen of morbid anatomy.

The subject of this case, was a young woman, about twenty-two years of age; of a robust and plethoric habit. She had led an irregular an dissolute life; and from appearance and from what could be learnt, had been addicted to the liberal use of ardent spirits. For some time previous to her death, she had made no complaint which could be considered as amounting to indisposition. Her friends recollected to have heard her mention some

slight pains, which she called rheumatism. They state, also, that she had entered into a marriage contract with a gentleman, who had broken it off a day or two before her death. Since which time, they say, she appeared dejected, and had been seen sobbing and in tears.

She took supper as usual, appeared somewhat dejected, and retired to bed at the ordinary time. As she remained longer in her chamber than common in the morning, some person was sent to awake her; but to the terror of the family she could not be roused—she was dead. From the posture in which she was found lying on the left side, with the knees drawn up, she was thought to be in a profound sleep; but, it was the sleep of death.

EXAMINATION AND DISSECTION OF THE BODY.

No marks of violence were to be seen on any part of the body. The lips were purple, one side of the face appeared also somewhat livid. The whole countenance, with the integuments of the neck, and upper part of the chest, were suffused with a deep red colour. The features of her face were not the least distorted; nor was there any apparent contortion of the limbs. It may be said that she slept through death; for she did not appear to have suffered any of its agonies.

The dissection was commenced by cutting through the parietes of the abdomen in the direcion of the linea alba. The contents of this cavity

upon a general inspection, appeared to be in a natural and healthy state, excepting the liver, which seemed larger than natural, and of a pale white colour. In continuing the examination more particularly, the liver was the only viscus in this great cavity, which was found in an unhealthy state. It had contracted strong adhesions to the peritonæum where it lines the parietes of the chest, abdomen, and lower surface of the diaphragm. The connecting organized coagulable lymph, was very beautifully arranged, and appeared like small delicate shreds; some were an inch long, others of a greater length, and from one to two inches in width.

The thorax was next examined. On raising the sternum from the diaphragm, there was nothing preternatural to be seen. The lungs on each side were free from adhesions; but the pericardium was, to the feel, perhaps more tense than common. On opening the pericardium, a large coagulum of blood presented itself, covering the heart on all sides, and completely filling the cavity of the pericardium. This, when removed, amounted to eight or ten ounces, with an ounce or two of serum.

The heart was of the usual size and very fat. Upon lifting its apex, it was immediately discovered that the blood proceeded from an opening in the upper part of the left ventricle, about half an inch in diameter, of an irregular lacerated appearance. The parietes of the ventricle, around

the opening, were considerably thinner than natural; and, upon attentive examination with the fingers, a fluctuation could be distinctly discovered, to the extent of an inch on one side of the opening; and upon pressure, flakes of a cheese-like substance were discharged.

The pericardium was generally of a natural appearance; excepting a portion of it, about the size of a dollar, or a little larger, opposite the opening, which showed strong marks of inflammation: an adhesion, about the size of a sixpence, had also taken place a little above the opening, between it and the surface of the ventricle. The external surface of that part of the aorta, which is generally said to be within the pericardium, likewise exhibited, on one side, some traces of inflammation.

In order to give an opportunity for a more minute examination, the heart, pericardium, and large vessels about it, were taken out of the body. On opening the right auricle from the inferior cava, nothing unnatural was to be seen. The dissection was continued from the auricle into the right ventricle; and this also exhibited a natural appearance. The left auricle was next opened from one of the pulmonary veins, and then the left ventricle; both of which, in general, appeared natural. On more minute inspection, however, of the left ventricle, an opening of an elliptical form was discovered, sufficiently large to admit the little finger, about an inch from the origin of

the aorta, on the left side, and immediately under the left columna carnea. It was considerably smaller than the external opening, to which it was almost directly opposite. Both openings communicated with an abscess in the parietes of the ventricle, about the size of a pidgeon's egg. It was to the upper surface of the thin covering of this abscess, which was more prominent than other parts of the heart, that the pericardium was adhering.

The aortal, pulmonary, and ventrical valves, were all in a natural state.

From this case may be deduced, a very important fact in Pathology, though perhaps of little practical utility. It teaches us that considerable disease may exist in so essential an organ as the heart, and yet be unknown, or even unsuspected, from there not being a single symptom present by which it can be characterized. Authors and practitioners concur in opinion, as to the intricacy of most of the diseases of this highly important organ. In their commencement, they are so exceedingly obscure and insidious, that the most attentive and sagacious physicians are perplexed and embarrassed. Some are abruptly and suddenly fatal, as in the present instance; others, continuing for a considerable time, are mistaken for affections of some other part, but ultimately prove fatal. This is the general result of all diseases of the heart, as dissection confirms. Though the

ravages of disease are extensive, there are often no predominant symptoms which can be considered as pathognomonic; the nature and seat of the diseases are guessed at, until an opportunity after death is afforded for dissection to develope them. Every fact which morbid anatomy furnishes, is important, as it tends to elucidate an obscure part of pathology, and must regulate our prognosis.

It is a curious and an interesting fact, that the left ventricle more frequently gives way, than any other part of the heart. At first sight, it appears strange, that the aortic or systemic side (which all anatomists know to be much stronger than the right or pulmonic side) should actually give way, or burst by its own action. This fact is confirmed by the experience of the celebrated Portal,* who informs us, that he has found the heart burst by its own action: the left more often than the right side; and the left ventricle more frequently than the auricle.

Verburgge, in his Dissertation on Aneurism, makes a similar remark, that though the left ventricle, from its organization, might be considered less subject to rupture, it is however the most frequent seat of it. Morgagni also mentions one or two facts of a similar nature. Professor Chaussier communicated to Portal, a case of rupture of the left auricle from a carriage wheel passing over the arch of the aorta.

* Cours d'Anatomie Medicale.

When organic lesion of the heart occurs, in the sound state, it has most generally been induced by some violent and sudden effort, or by a burst of anger. We see an analogous effect produced upon other powerful muscles of the body, and particularly the strong fibres of the gastrocnemius which are lacerated by their own strong and sudden contractions.

The present case cannot be considered a fair specimen of organic lesion of the heart, in a sound state; but an example of abscess or ulceration in the parietes of the left ventricle, which, upon bursting, proved suddenly fatal. The habit of our patient, no doubt, very much accelerated the fatal termination, "for we uniformly find, (says the late much lamented Allan Burns,) that in almost every organic lesion of the heart, stimuli are the bane of the patient." As extreme grief has been anciently said to break the heart, the disappointment in love which this unfortunate young woman experienced, ought not perhaps to be wholly overlooked in an investigation of the cause of her fatal disease.

The existence of rupture of the heart, where the muscular parietes have been diseased, is additionally confirmed by this case. In most of the examples, it would appear, that hectic, and other symptoms of decay, have been the attendants. This appears to have been the condition of a man whose case is related by Marchettis. This patient, after lingering for some time, died suddenly, and dissection showed an ulcer, which had destroyed, not

only the pericardium, but also a large portion of the heart; and the ulceration had ultimately penetrated into the left ventricle, and sudden death was the consequence. Other observers have recorded similar cases.* Morgagni found on dissection, in a spleeny old man, who died on the third day after a slight indisposition, that blood was effused into the cavity of the pericardium, through three holes, which communicated with the left ventricle.

Organic lesions of the heart, and spontaneous rupture, from abscess, or ulceration, or the bursting of an aneurism of the aorta within the pericardium,† are uniformly and quickly fatal. In each of these instances, the pericardium becomes filled with blood, and the heart is oppressed, and no longer able to act. Perforations of the heart from wounds, are observed to be less suddenly mortal than the lacerations just referred to. We are informed by Fanton, that he saw a man live till the twenty third day, who had been wounded in the heart. The left ventricle was pierced, and, as he states, the internal fibres corroded and destroyed. Though but few will be willing to give credit to a case so astonishing, we have, nevertheless, a number of very remarkable examples

* Morgagni.

† Whilst a pupil in Guy's Hospital (London) I saw an instance of instantaneous death, from the rupture of an aneurism of the aorta, within the pericardium, about the size of half a nutmeg. The man was on the operating table, undergoing the operation for popliteal aneurism; and just as A. Cooper was about to raise the lower edge of the sartorious muscle, he suddenly expired.

of wounds of the heart, by Morgagni and others, where it has been pierced through and through, without being followed by instant death. Charles Bell has seen a man who was wounded during the embarkation of Sir John Moore's army at Corunna, in whom the right ventricle of the heart was penetrated by a ball; and he lived for fourteen days. In the 2d vol. of the Medico-Chirurgical Transactions, we find a case related, in which a bayonet had wounded the heart. It extended about three quarters of an inch into the muscular substance of the left ventricle, about two inches from the apex. The bayonet penetrated the substance of the ventricle, and divided one of the fleshy columns of the mitral valve. This man lived forty-nine hours after receiving the injury. He expired suddenly in the night, experiencing just before his death, a chilly sensation, which admonished him of his approaching dissolution.

EXPLANATION OF THE PLATES.

FIGURE 1st. Represents the heart unopened: the whole extent of the left Ventricle is seen; at the upper part of which is the hole, or rupture, and the diseased appearance around it. Likewise the pericardium adhering a little above and reflected back to show the diseased part more completely.

1. The left ventricle unopened.
2. The hole or rupture, large enough to admit the end of the little finger.
3. Diseased part, showing a prominence of the abscess, and a dark coloured inflammation surrounding it: at this point the fluctuation was plainly to be felt.
4. A portion of the pericardium folded and thrown back.
5. Point of adhesion with the ventricle.
6. Left auricle.
7. Pulmonary artery.

8–8. Division of the pulmonary artery into right and left.

9. Ascending aorta.
10. Superior cava.

FIGURE 2d. Shows the left ventricle cut open through the middle, and reflected back to expose the internal opening into which a bougie is passed.

1. The aorta.
2. Pulmonary artery.

3-3. Right and left pulmonary arteries.

4. Superior cava.
5. Divided edge of the left ventricle as turned up.
6. Lower edge of the same with the external surface of the ventricle.
7. One of the mitral valves.

8–8. Cordæ tendineæ.

9–9. Divided edges of the left columna carnea.

a. The internal pectinated surface of the left ventricle.
b. Internal opening with a bougie introduced.

RUPTURE OF THE HEART.

FIG. I.

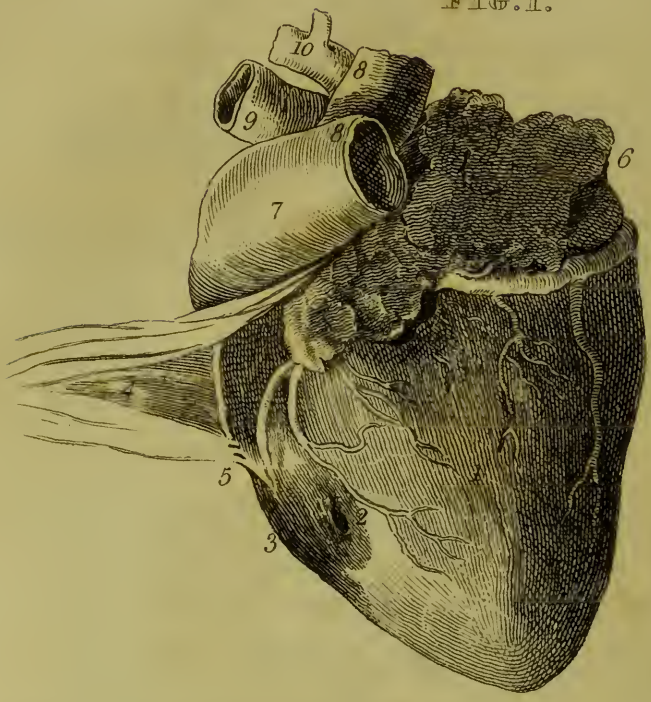
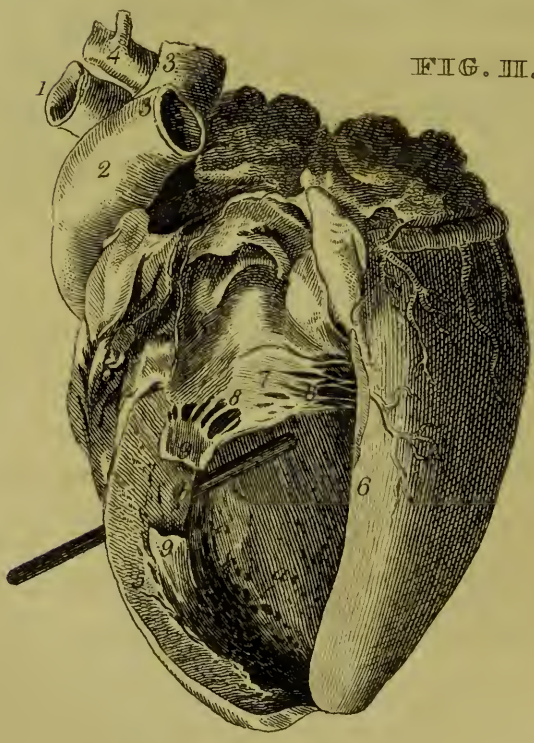


FIG. III.



A. Anderson del. & sculp.

CASE

OF

PHLEGMASIA DOLENS

IN A MALE,

BY GEORGE B. PURDY, M D.

COMMUNICATED, WITH OBSERVATIONS,

BY ANSEL W. IVES, M. D.

Fellow of the Society.

Read the 5th of March, 1816.

North Salem, August 10th, 1815.

Dear Sir,—At your request, I send you the following description of a singular affection of my left leg.

During my attendance, as house physician, in the New-York Alm's House, in the fall of 1814, I contracted a malignant typhus fever, which very much reduced me. Soon after the attack, I perceived a swelling in the left groin, which became painful by motion, and it continued without much alteration in size for five or six days. After which the fever was so severe that I had no correct knowledge of my situation until about four weeks afterwards, when I began to convalesce. I was then extremely debilitated, and laboured under all the symptoms usually subsequent to that disease.

At this time, my attention was again called to the tumour in the groin. It was considerably enlarged, and extremely painful on pressure, and also when the limb was extended. After remaining in this condition for several days, I was, on the 28th September, imprudently exposed to a draught of damp cold air. My left foot soon became unusually cold, and the calf of the same leg was affected with pain similar to that produced by cramp. The pain continued to increase, notwithstanding the immediate application of warm fomentations, frictions, antispasmodics, &c. and it soon became almost intolerable. For three hours, I was in the most exquisite torture imaginable. During this period, every endeavour to mitigate the pain, proved unsuccessful. But in consequence of taking large quantities of laudanum, and pressing my foot forcibly against the bed-post, the pain was so much relieved that I fell asleep. When I awoke in the morning, my leg and thigh were swollen to twice their ordinary size; they had a shining, white appearance, and the skin was smooth, tense and elastic. The saphena major and minor veins were much distended; and the whole limb was extremely painful to the touch, or on the least motion. There was an unusual degree of heat in the part, and considerable symptomatic fever.

The sensibility gradually diminished for about two weeks; but the swelling continued much the same. At this time, by the constant use of band-

ages and stimulating applications, its size was so much reduced, and its strength increased, that I was soon able to walk with the assistance of a cane. During the succeeding winter, I attended the medical lectures, and by keeping my limb constantly bandaged, and taking moderate exercise, its strength increased; and I flattered myself that it would soon regain its former vigour. On the 6th of July, 1815, I perceived that my leg was much weaker than usual, and enlarged about an inch in circumference; but by rest, friction, with stimulating applications, and cold bath, it has since regained its former condition of imperfect strength, from which I fear it will never recover. Thus you have an imperfect description of a disease, the pain of which was not less terrible to bear, than its cause is difficult to be accounted for; but you have the facts, and with them you may be able to overthrow many of the vague and futile theories, which have been offered respecting a disease of similar symptoms, called phlegmasia dolens.

I am with respect, your's, &c.

GEORGE B. PURDY.

Ansel W. Ives, M. D.

REMARKS.

It has long been a question of controversy, whether phlegmasia dolens is a disease peculiar to puerperal women. It is an affection which rarely occurs; and as women, in that state, are

undoubtedly, in most cases, the subjects of it, it has led to the belief that its inexplicable causes were connected with child-bearing. A disease has many times affected men, which, had it occurred in a puerperal woman, would most probably have been recognised, by the discerning physician, as phlegmasia dolens; but as it has been necessary for the support of hard-sought theories, that phlegmasia dolens should be confined to the parturient female, it is not strange that distinguishing characteristics should have been imagined; and that the identical disease should have been called by another name, when it appeared under other circumstances, and was thereby likely to endanger a favorite hypothesis.

In Dr. Purdy's case we have a simple statement of facts, without regard to any theory. The question now presented, is, with this knowledge of its symptoms, what name are we to give to his disease? From the temperament and constitution of the patient, (for he is slender and of a nervous, irritable habit) and the state of his health at the time of the attack; from the character, the progress, and the subsequent effects of the disease, we think we are warranted in concluding that it was phlegmasia dolens.*

If then this disease occurs to others, beside puerperal women, let us exult that we are partially disentangled from the intricacy of its causes.

* This was the opinion of his attending physician, Dr. Gilbert Smith, of this city.

Although we cannot precisely explain what they are, still our knowledge is advanced by discovering what they are not.

To attempt the refutation of an opinion, is to acknowledge the possibility of its truth; hence, many theories of the earliest writers, on this subject, are not noticed in modern discussions. It is but rational that the limits of speculation should henceforth be much narrowed for the same reason. Mr. White has attempted to prove the causes of this disease to be a laceration of, or pressure upon the lymphatics, by the child's head, in the time of parturition; and a consequent obstruction and stagnation of the lymph. Drs. Denman and Bard, suppose it to be produced by an absorption of vitiated matter from the uterus; and Dr. Thomas is of opinion that it is a local affection, arising from pain and distention in parturition. But if it occurs to males, and is uniformly produced by the same causes, these theories are as completely disproved, as is that of Mauriceau, who imputed the disease to a reflux of lochia upon the limb; and also that of Astruc, who attributed it to a thickening of the lymph by an admixture of milk.

Whether it is a local disease, and its proximate cause (whatever may be its remote causes) an obstruction in the inguinal glands, and a consequent thickening or swelling of the lymphatics, as was supposed by Mr. Trye and Dr. Ferriar; or whether it is a general inflammatory affection

which produces a sudden effusion of lymph from the exhalents into the cellular membrane, as was first argued by Dr. Hull, and since ingeniously and logically supported, in an inaugural thesis, by Dr. J. M. Smith, of this city; or whether it is produced, and is dependent on a yet unknown cause, I shall not attempt to determine. Permit me, however, to offer the conjecture, that the disease is primarily, an inflammation of the glands and lymphatics of the parts affected; analogous in its operation and effects upon these organs, to inflammation of the extreme arteries in a paroxysm of arthritis. The system generally, and the diseased part particularly, being predisposed, by extreme irritability, a paroxysm ensues from exposure to cold, or some casual excitement, which is followed by general or symptomatic fever, and terminates by an effusion of serum, or coagulable lymph.

It would be incompatible with these remarks to expatiate on this hypothesis; but so far as conclusions may be drawn from analogy, we are supported in the belief that it will afford a solution to the causes of the disease. It has at least been proved, that opinions on the abstruse causes of this singular disorder, are converging; and it is devoutly hoped, that by a fortunate dissection, or by some other means, they may all be speedily united, by a perfect developement of its real character.

DESCRIPTION

OF AN

EPIDEMIC INFLUENZA,

WHICH PREVAILED

IN THE NORTHERN AND EASTERN PARTS OF THE UNITED STATES,

AND MORE PARTICULARLY

AS IT APPEARED IN THE CITY OF NEW YORK, IN THE AUTUMN OF 1815.

BY ANSEL W. IVES, M. D.

Fellow of the Society.

Read the 4th of June, 1816.

The subject of the following remarks has already received the particular attention of hundreds. I have, therefore, little more to offer to the society, than the facts, which I have been able to collect, relative to the epidemic of the last autumn.

As the origin and existence of Influenza seems to depend much upon the constitution of the atmosphere, I would premise, that, from a comparative review of the weather in this city during the months of August, September, and October, in the four years preceding 1815, it appears, that the number of rainy days, and the quantity of rain which fell, were nearly the same in each of the above seasons;

that there was a storm of rain between the 20th and 25th of September every year; that in the months of August and September, for three years preceding 1815, there was very little difference in the general course of the winds. The mean temperature of the heat, in September 1813, was 67 1-2 degrees; in September 1814, 64 2-3 degrees, and in September 1815, it was 63 2-3 degrees. From these facts it appears, that the difference in the temperature of the two last seasons, was not so great, as that of the two seasons preceding the last.

In this city, and throughout this state, the summer months of the last year, were unusually salubrious; and the weather, without any uncommon changes, was remarkably fine until the morning of the 22nd of September. A storm of rain then commenced, and continued incessantly until the forenoon of the 24th; when it was concluded by a most tremendous hurricane from the South and East.

The gale began in the eastern seaport towns about eight or nine o'clock in the morning, and raged with unceasing fury for about three hours. Its violence was greater on the sea-shore than in the back country: in the eastern, than in the middle states. In the interior of the southern states, the gale was not felt at all; nor did it extend, so far as I have been able to learn, west of the Allegany mountains. It was sorely felt by mariners at sea; not only on the western, but on the eastern coast of the Atlantic. On the latter, it began earlier,

was of longer duration, but was less violent, than on the former. Had the direction of the wind been the same, it might have been said, that its greater violence on our coast, arose from its being the lee-shore. But from what I have learned from persons then in the English seaports, and particularly from the logbook of captain Rose, who sailed from Greenock on the 22nd, it appears that, on that day, it rained very fast; that at 6 o'clock A. M. the wind veered from E. to S. W. and blew briskly; and from that time continued to blow for several days, sometimes moderately, but often violently; so that, after having put to sea, he was obliged on the 24th to return to port, till the storm abated. On the American coast, its fury and devastation were unparalleled. It blew with such impetuosity from the sea, as to cause a sensible reflux to many fresh water springs; others, during the gale, were observed to be almost entirely dry. The atmosphere, for many miles from the shore, was loaded with marine salt. In some places, the tide rose five or six feet higher than was ever known before. In short, the commotion was so great, that it was thought by many, it could only have been produced by an earthquake.

I have said that the storm concluded in America on the 24th of September: from that time the weather was cool for three or four days; after which, it was warm and pleasant till the 10th of October.

On the 29th and 30th of September, many persons, in the city of New-York, were attacked with,

what was then supposed to be a severe catarrh; and some were so violently affected, that their disease was mistaken for cynanche trachealis. On the 2nd of October, the number of cases was multiplied to such an extent, and that too without any assignable cause, that physicians began to forebode, what was soon after realized, the universal prevalence of an *Epidemic Influenza.* It now appeared suddenly in every part of the city, and on the 15th, it was estimated that it affected not less than twenty thousand persons. I have been informed, by physicians from different parts of the country, that it appeared in Quebec, Montreal, and Kingston, about the 1st of October; in Vermont and in the northern parts of New-York, between the 10th and 15th; in Boston on the 1st; in the southern seaports of Massachusetts and in Rhode-Island, a week later; in the southern and south eastern parts of Connecticut, between the 10th and the 15th; in Philadelphia, about the 15th; in Pittsburg, the 12th; in Muskingum, Ohio, the 15th of November; and in Chillicothe, the 20th. In the southern states, it varied in the time of its commencement, from the 1st of November to the middle of December.*

In the northern and middle states, it was at its

* In Virginia and in North and South Carolina, the disease assumed a very different character from what it did in New-York. An epidemic is now prevailing in the southern states, which, by some respectable physicians of that part of the country, is thought to be a modification of the influenza; although the description they give of it, corresponds much better with the symptoms of, what is called here, *Cynanche Pharyngæa.* These remarks, therefore, are not applicable to the epidemic of the South.

greatest height in one month from its first appearance; and in two months, it had almost entirely disappeared.

Contrary to a law of most epidemics, the Influenza of last fall, was much more severe towards its termination, than at its commencement; and many, who were attacked a second time, were more violently seized, and suffered more than at first.

The symptoms of the disease were, pain in the back and limbs; an aversion to exercise; a sensation of cold creeping over the body, particularly between the shoulders; an exquisite sensibility to change of temperature, and a disposition to be constantly warmed, not with clothing, but by the fire; a pain in the eye-balls, both between and directly over the eyes, with a peculiar sense of tension, or fulness, which was increased by blowing the nose; a red, watery appearance of the eyes, and swelling of the eye-lids, a partial stoppage or obstruction in the nostrils; coryza and loss of smell, with frequent sneezing; a feverish state of the mouth, by which the taste was vitiated, or altogether destroyed; a slight redness and soreness of the throat; a pain, or what was commonly called by the patient, a rawness in the upper part of the chest, which was encreased by a dry hoarse cough;—the countenance was flushed; the skin dry, and preternaturally warm; the tongue was marked with a white streak in the middle; the appetite sometimes impaired, but often good; the pulse accelerated and harder than natural; the functions of the abdominal viscera and

urinary organs were unimpaired. These symptoms continued, with an evident exacerbation towards evening, for four or five days, when the inflammation and slight fever began to subside; and in eight or ten days, the disease usually terminated in a copious discharge of thick mucus from the lungs, bronchia, and pituitary membrane.

Such were the ordinary symptoms and termination of the Influenza; but they were subject to an infinite variety of changes; and it was this, which rendered the disease, in any degree, alarming. Sometimes, one side of the head would be affected for several days, and then the pain and sense of fulness shifted to the other; in some instances, the inflammation was confined exclusively to the head; in others, almost entirely to the chest; and in a third class, it was frequently transferred from one to the other. Many were affected with all these symptoms in an aggravated form, attended with an acute pain in the side on taking a full inspiration, bloody expectoration, hard full pulse, white tongue, hot skin, and constipated bowels.

Another form of the disease, which was almost peculiar to the aged and to the intemperate, was an aggravation of the catarrhal symptoms; a soft pulse, easily compressed; an oppressed respiration; great debility, with pain flying from side to side, and from limb to limb; the tongue moist, and slightly furred in the first stage of the disease; but it soon became covered with a brown coat: an early expectoration of bloody mucus supervened,

which was not streaked with blood, but had the appearance as if blended with it by stirring. The patient frequently perspired freely from the time of the attack; and his bowels were as easily moved by cathartics, as in health; in some cases, they were relaxed without medicine. In short, as the form of the disease, last described, was *pleurisy*, excited and aggravated by Influenza, so this is the more malignant disease *pneumonia typhodes*, increased by the same means.

Frequently, children were seized with the usual symptoms of Influenza, and in one or two days from the attack, the disease assumed the most alarming form of cynanche trachealis.

Another concomitant of the disease, both in adults and children, but most frequently in the latter, was an exanthematous eruption. It appeared at uncertain periods of the disease, and was little regarded in the treatment.

In some cases, the stomach was particularly affected; and the patient was troubled with nausea and vomiting from the attack. In a few instances, the disease seemed to determine particularly to the bowels; and after having been developed by the ordinary symptoms, spent all its force in a diarrhœa.

I have known of two cases, in which the patients were attacked with Influenza, and in two or three days after, with paraplegia, which terminated in death. These persons were both young men. A more extraordinary consequence, or concomitant of

the disease, was a loss of voice. I witnessed three cases of this kind, and heard of many more. None of them had much soreness, or swelling of the throat; nor was there any apparent defect in the organs of speech. They all spoke in their ordinary tone at night; and on rising the next morning, found themselves unable to utter a word aloud. One of these persons, was Dr. Valentine Seaman, of this city; his voice was restored in about forty-eight hours: another was a gentleman in Greenwich-street; he was about thirty-five years old, of a feeble constitution, and by great exposure to wet and cold, his catarrhal symptoms were so severe, that he recovered neither his health nor his voice, but died in about four months after the attack. A third, was a respectable merchant of this city, twenty-three years of age, who lost his voice a week after he was attacked with Influenza; and notwithstanding the repeated use of blisters, emetics, the most stimulating gargles, electricity, &c. he has never been able to speak aloud since, though he has otherwise enjoyed good health.* Dr. Hamilton, in his description of the Influenza of 1782, relates the case of an officer who lost his voice for two months, as he supposed, by the violence of Influenza. It would be difficult to explain how the Influenza pro-

* Since the above was written, this gentleman's speech has been restored. He began to recover it gradually about the 1st of August, 1816; and in six weeks from that time was able to speak in his ordinary tone of voice. He can ascribe the change to no cause, unless it was the extreme heat, which for two or three days preceded it.

duces such an effect on the organs of speech without the least *sensible* injury. The proximate cause of the cases, I have related, was most probably a paralysis, or torpor of the recurrent and internal laryngæal nerves.

The Influenza has been described, under various names, as having reigned epidemically in Europe thirty times, within the last five hundred years. It has also prevailed in America, ten times within somewhat less than one hundred years; and from what we have learned, by accident, of its prevalence in Asia and other parts of the world, we may safely conclude that it has visited, again and again, the whole habitable earth.

It was hoped, that, from a careful comparison of the accounts that have been recorded of this disease, such inferences might be drawn as would have a tendency to develope its *remote causes*;—but the attempt has failed. It has prevailed in such different situations, and under such a variety of circumstances, that we are not warranted to conclude, that it has always proceeded from the *same* causes.

On reviewing its history, it does not appear to have been produced, or to have been attended by any peculiarity in climate, seasons, or local situation; nor has there been any singularity in the age, temperament, or occupation of those attacked. There has been no uniformity in its appearance, in relation to other diseases, or in its type, or in the length of the intervening periods

of its prevalence. It has prevailed at the same time, in the hottest and in the coldest climates. It has commenced epidemic in every month of the year. It has appeared sometimes alternately, and at others simultaneously on the sea coast, and in the interior of the country; in the largest cities, and among the scattered inhabitants of uncultivated lands; on board of ships at sea, and on the most solitary islands of the ocean. In some seasons, it is known to have extended over all Europe, America and a part of Asia; indeed, to have invaded them all apparently at the same time; while in others, it has been confined, exclusively, to a particular section of country. In some seasons, and particularly in the last, males were more generally attacked than females, and adults than children; in others, all ages and temperaments suffered indiscriminately.

It may be safely affirmed that this disease is produced by an unhealthy constitution of the atmosphere; but this is little more than to acknowledge, that its causes are too subtle for investigation. The epidemic Influenza, in a majority of cases, has been preceded, or accompanied by a course of easterly winds; from which, some have been led to believe, that it was produced by marine salt diffused through the atmosphere; but as it has prevailed when the wind had blown for a long time, from an opposite quarter; and, as it has as frequently raged in Europe, when the wind blew from the east, as in our own country, we have positive proof

that it is by no means invariably produced by that cause. Dr. Davies, of Columbia, South Carolina, says of the Influenza of last fall, "it raged with the greatest severity in the interior of the country, whilst the sea coast has been exempted or suffered comparatively but little." It seems generally to have been connected with a humid state of the atmosphere; a circumstance which has always increased its severity, during its epidemic prevalence. Sydenham, with many who followed him, supposed that it was occasioned by cold and moisture. Dr. Pearson refers the Epidemic Influenza of China in the year 1800, to the same causes. But on the other hand, Dr. Dixon, of Whitehaven, says: "it was supposed to arise, in that place, in 1803, from a sudden transition of the atmosphere from heat and moisture, to a cold, dry and windy state." Dr. Darwin supposed that, in 1782, "it originated from materials which produced a *dry fog*, for many weeks the same season;" and many physicians have declared that it occurred without any *uncommon* changes in the atmosphere. Whether the Influenza of the last autumn was produced by the storm which preceded it, we shall not attempt to conjecture; if it *were*, the effects of the storm were not limited by its extent, nor were they alike in all parts where it prevailed. Although I have been particular to inquire, I have not heard of its attacking the crew of any ship at sea; nor did it prevail, so far as I have been able to learn, in any part of Europe.

I have not discovered that Influenza, as some have supposed, has been uniformly accompanied by any particular diseases, nor can I think, with the editors of the Medical Repository, that the *exanthemata* of the last fall, were excited, or aggravated by the same constitution of atmosphere which produced the Influenza. None of that order of diseases, raged with uncommon virulence, except the small pox; and if that was unusually malignant, it may be fairly attributed to other causes than the morbid state of the atmosphére. The Committee appointed by the Medical Society of the City and County of New-York, to inquire into the origin and progress of the small pox this year, was of opinion, that of 800 cases of confluent small pox about 300 were fatal. But it should be recollected that most of these persons belonged to the lowest class of the community; and, as from prejudice, superstition, or negligence, they had not availed themselves of kine pox, most of them became infected in the natural way: they were crowded into filthy abodes, and dirty narrow streets, without the comforts of wholesome food, and frequently without the aid of "skill or care." But it is obvious, that the causes which produced the Influenza, had no agency in the spread of eruptive diseases, from the single consideration, that the former invaded the whole country, whilst the latter were limited to local situation.

Finally, the most uniform and peculiar characteristics of the Influenza are these; it spreads more

rapidly and extensively than any other epidemic, and its attack is more uniform, and less fatal in its consequences.

So many respectable physicians have expressed opposite opinions, as to the contagious or non-contagious nature of Influenza, that it would be presumptive in me to decide. On examining, in the Medical and Physical Journal, the communications of about eighty practitioners, who have described this epidemic as it appeared in England in 1803, it will be observed, that on the subject of contagion, they are pretty equally divided. If, however, it is propagated by *laws of contagion*, its operation is unquestionably regulated by a new code. If we are to understand by contagion, a morbid principle in the atmosphere, the existence of which is only known by its effects in producing an epidemic disease, it cannot be denied that Influenza is contagious. But this meaning is not implied, in the general acceptation of the term. By a contagious disease, we mean, one which can only be contracted by personal contact; by inhaling the effluvia which emanates from the sick, or from inanimate substances which have been exposed to that effluvia; and as it has just been observed, the operation of contagion in producing such diseases is invariably limited by well known laws, which have no agency or controul in the spread of Influenza.

Without attempting a full discussion of the doctrine of contagion, it may be admissible to men-

tion a few facts corroborative of the above opinion.

Those who have had Influenza once, twice, or thrice, are not the less liable, on that account, to be attacked again. It is a very common occurrence for a person to have two attacks in one season. It is frequently the case, that two thirds of a family (more or less) will be taken at nearly the same time; and the remaining part of the family, living in the same rooms, and eating at the same table, will escape it altogether. If then, it is propagated by specific contagion, it must be acknowledged, that it is less active and less certain in its operation than small pox, or than any other well defined contagious disease. How then shall we account for its simultaneous appearance in the most extreme sections of the country? It is said by Mercatus, that in 1557, "it attacked all parts of Spain at once; so that the greatest part of the people were seized with it almost in the same day." Dr. Glass says, that when it prevailed in Exeter in 1729, it was "conjectured that two thousand were attacked the same night." It has already been observed that it prevailed last fall at Quebec, Boston, and in New-York, at the same time, while in most of the intervening towns, it commenced two or three weeks later. This was not the only instance in which the disease seemed rather to *appear*, than to spread over the country; and by what possible means could it have been thus suddenly propagated by specific contagion?

The *exciting* causes were obviously, sometimes, a cold damp atmosphere, and a sudden change of temperature; for which reason, perhaps, men were more generally attacked than women and children. There were many instances of escape, however, among those who were exposed to these causes, nor was it easy to discover any peculiarity in constitution or temperament, which should have shielded them from the disease.

In conformity to custom, I have spoken of every affection mingled with Influenza, as an *anomaly* of that disease; but this is a custom of imputing more evils to the influence of epidemics, than can fairly be charged upon them; and one which has frequently induced a closer adherence to a particular mode of treatment, than has been warranted by success. It is an old truth, and will be duly regarded by the judicious practitioner, that all diseases partake more or less of the nature of the prevailing epidemic. But this practical maxim is liable to mislead. We know that persons sicken daily in the most healthy seasons, and that too, with the most alarming forms of disease. The predisposition which exists to other disorders, is not destroyed by the invasion of an epidemic; and those who are thus predisposed, would have sickened independently of any epidemic influence. For instance, an epidemic Influenza appears, of an inflammatory character; at this juncture, a person is highly predisposed to typhus: by the exciting causes of the epidemic, or by some

other agent, the seeds of disease are quickened into action, and the man has typhus fever *modified* by the most prominent symptoms of Influenza. This would ordinarily be called an anomalous case of Influenza, ending in typhus fever. Cases analogous to this have unquestionably existed; and a malignant disease has thus been considered and treated, as an anomalous symptom of a mild epidemic.

If this view of the disease is correct, but little need be said on the method of treatment. A few general observations will include the *principles*: the *particulars*, in a disease like this, are regulated in every man's practice by his own judgment. The Influenza of last fall, when unmixed with other diseases, was purely inflammatory. The local inflammation was not generally so extensive as in many other inflammatory diseases; and such cases, of course, were not attended with much fever; thus a great proportion of those who were subjects of it, by a few days relaxation from exercise, abstemious living, and perhaps a domestic sudorific, or a dose of neutral salts, recovered without medical advice. In the next class, in which was included, a great proportion of all who needed the aid of a physician, the disease was well marked by the severity of most of the symptoms which have been enumerated in describing it. It was ordinarily and successfully treated by sudorifics, cathartics, demulcents, expectorants, emetics, epispastics, venesection, and sometimes in the

last stage, with opiates and tonics. A part, or all of these were remedies according to the violence and obstinacy of the disease.

To this description of the character and the general treatment of the complaint, I would make no other exception than what should be made in every epidemic, viz. the peculiarities which arise from age, constitution and climate. To what has been said on the anomalies of the disease, I have nothing to add. If they be not lost in the name of the epidemic, they will be judiciously treated.

The Influenza is described, as having been generally of an inflammatory type in Europe, and has been treated accordingly. To this, however, there are some exceptions, and I would just mention in the treatment, the use of cold affusion. This was practised by Drs. Wright and Currie, and it is said, in a few cases with good effects. It is natural for parents to have a predilection for their own offspring, and it is not therefore uncharitable to suppose, that these gentlemen have spoken well of a practice, which, perhaps in some instances has been salutary; but which, in a majority of cases would not be admissible. Dr. Traill subjected his patients in the Orkney Islands, to cold affusion; but he represents the disease to have been of an asthenic type, and the local affection to have been but slight, when compared with the general fever and debility. In America the Influenza, so far as I have examined the subject, has always been represented as an inflammatory

or sthenic disease, except the epidemic under consideration, which is described in the 2d No. of the 3d Vol. (new series) of the Medical Repository, as a disease characterized by symptoms of malignancy, and to have been treated with gentle diffusible stimuli, aromatic infusions, &c. As I neither saw nor heard of any patients with the ordinary symptoms of this disease subjected to such a mode of practice, I can say nothing of its efficacy.

In describing the epidemic of last autumn, I have called it *Influenza;* but in doing this, I have dissented from opinions too respectable to be passed over without particular examination. There have been so many innovations in nosology, and these are supported with such pertinacity of opinion, that in describing a disease, it often becomes necessary to enumerate a long catalogue of names, not less to identify the malady in question, than to gratify the vanity of a host of authors. Fortunately, there has always been such an exact uniformity of character in the epidemic under consideration, that hitherto it has produced little wrangling about names. It cannot but be admitted, that it more properly belongs to Dr. Cullen's order *Phlegmasia*, than to the order *Profluvia* under which he has placed it; but whatever opinions may exist as to its proper *order*, it is generally known and acknowledged, that Cullen's species *catarrhus a contagio*, the *febris catarrhalis epidemica* of Hippocrates, the *tussis epidemica* of Sy-

denham, and the *catarrhus epidemicus* of Sauvage, are all synonimous with the Influenza of the Italians;—a name which has of late years been generally used to express the same disease.

Among other respectable writers, the term Influenza has been adopted by the editors of the Medical Repository, and the disease very accurately described by them, (Vol. 11. p. 190,) as it appeared in 1807. In the 2d No. of the 3d Volume (new series) of the same work, the epidemic of last fall is noticed, but its identity with the Influenza which had prevailed in preceding years, is denied. I have presumed to differ in opinion from the writer of that article; but I am willing to submit the question on the testimony exhibited in a comparison of the numbers of the Repository to which I have alluded.

A

DISSERTATION

ON THE

UNIFORM ACTION

OF THE

ABSORBENTS.

BY CORNELIUS E. DE PUY, M. D.

Fellow of the Society.

Read the 3d of September, 1816.

THAT the action of the absorbents continues UNIFORM throughout every stage of life, and in every condition of the body, whether of health or disease, unless when mechanically interrupted, appears to be almost a necessary consequence to their comparative insulated state, and the independent manner in which they perform their functions. This opinion, which is warranted by an exclusive attention to the nature of the absorbent system, acquires support from a connected view, as well as from a detailed examination, of the natural and healthy operation of the other functions of the body; and receives confirmation from the light which the phenomena of diseases shed on the inquiry.

Those who are accustomed to consider the ab-

sorbents as the seat of some of the most common diseases, and who daily administer medicines with a view to accelerate their action, and with apparent effect, may at once reject a doctrine, as untenable, which appears to be so palpably contradicted by some of the most familiar facts that the practice of medicine offers to common observation. But it is not unusual in medicine, for error to assume the garb of truth so speciously as to elude detection, even though it be subjected to daily observation. Perhaps the result of an honest inquiry into the very circumstances which may be objected, and a fair explanation of them, will serve to establish the doctrine against which they may, at first, appear to militate.

In the progress of the subsequent attempt to prove the Uniform Action of the absorbents, I shall have frequent occasion to advert to the circulation; and sometimes, to infer necessary consequences, respecting the nature of the absorbents, from known facts and familiar occurrences which we observe in the action of the blood-vessels. It will therefore be particularly interesting to contrast such peculiarities in those two systems of vessels, as have a more immediate relation to the object of this inquiry; it will show the distinct character of each, and also give a concise and comprehensive view of the fundamental principles, on which we intend to rest the doctrine to be supported.

It is well known that the respective offices of these organs are as opposite as they are distinct;

that it is the constant exertion of the one, to remove that supply which is deposited by the other, in order to repair the waste of its antagonist. But, in examining the circumstances which actually occur, and, in tracing the consequences which would inevitably ensue from a different regulation, we are almost irresistibly led to infer, that the wasting process continues stationary at a certain point of action; and that the vessels by which it is accomplished, must not only be constantly in exercise, but also undeviating and uniform in their operation. This opinion acquires plausibility from a number of proofs, both direct and collateral, which warrant the position, that the absorbents are so singularly constituted, as to be actually incapable of being either accelerated or retarded.

On the contrary, we know that the blood vessels possess a susceptibility, which gives them a range of action between the two extremes, which occasion mortification from excessive excitement on the one hand, and from direct debility on the other;—which, also renders them the chief agents in effecting the changes that we observe in the body; and in producing the variety of effects which we know it to suffer.

Both are endowed with that inherent vital energy which nature has originally diffused throughout the animal system. This *vis insita*, as it has been aptly termed, is adapted to the peculiar constitution of each, so as to subserve the dif-

ferent purposes for which they were intended :—its degree is, doubtless, so proportioned, in each, as to constitute a *relative* equilibrium ; that, in the performance of their particular functions, the *relative* action of both, might be consistent with that characteristic temperament of the body, which results from the collective operation of all its powers ; and that their individual functions, though distinct, might yet harmonize in the general economy of the animal machine.

But, the principle of irritability, in whatever it may consist, appears to be so modified in the circulatory vessels, as to render them susceptible of being excited by a variety of other agents than their *internal*, and truly natural stimulus, the blood ; such as, the nervous influence, passions, caloric, and the numerous class of medicines termed stimulants. This additional susceptibility renders the circulation the chief index by which we judge of the operation of these *external* agents, on the system in general. Consequently, as all the other organs (the absorbents excepted,) are directly, though more or less remotely, under the controul of the circulation, they must also be disturbed, proportionally to their dependance, by the variations to which it is constantly exposed.

The absorbents, on the contrary, in the performance of their functions, have no immediate dependance on the circulation, excepting what is necessary for simple attachment at their termination, nor any intimate connection with the minor

organs. The other powers are successively put in action, by the direct impetus of the heart and arteries; but the absorbents have a distinct source of independent motion within themselves. Equally callous to the impression of every external stimulant, and superior to the action of the most powerful narcotic, they imbibe, in, perhaps, a peculiar and an inexplicable manner, whatever comes in contact with their mouths;—re-acting only to the *mechanical* stimulus of their contents, they propel what is thus absorbed, by their own inherent power; unsupported by any *vis a tergo*, and unassisted by that reciprocal aid, and common consent, by which the other organs maintain their usual balance, and correct their occasional irregularities. Though they derive their materials of growth from the circulation, and are supposed to be partially supplied with nerves, still they are not invigorated by the one, nor stimulated by the other; for they steadily continue their action after the cessation of both. The heart may be the *primum mobile* of the system, but the mouths of the absorbents are its true *ultimum moriens*—vitality continues its vibrations there, after its quiverings have ceased in every other part of the body.*

* Dissectors, on opening the body, have observed the lacteals, which were at first apparent, to contract and disappear—they are particularly found to be distended if an animal dies, or is killed, shortly after a full meal.

See subsequent proofs that the absorbents are exempted from the agency of External causes.

Hunter relates a case of dropsy, where the patient was 24 hours dying; when the extremities had become cold, the swelling began to subside, the urine to increase, and by the time the patient was dead, the ab-

Thus excluded from the ordinary participations of the system, they uninterruptedly continue their operations, both in health and disease, in excitement or debility, and at every period of life, so that they may be considered an exception to that general rule, which has established a correlative dependance, and an unanimity of action between the other parts of the system. Left to be governed by their own laws, they steadily pursue their uniform course, undisturbed by vascular irregularities, and unaffected by nervous sympathies, amidst all the commotions which frequently confuse the other operations of the body, and, sometimes, irretrievably destroy the harmony of its powers;—nor do they droop in its languor, or participate in its debility, whether exhausted by fatigue, enervated by excess, or prostrated by disease:—the life which they possess, within themselves, maintains its ascendancy over the death of the body, till, probably, they are killed by the poisonous quality of its dissolving materials. As a component part of the system, they must ultimately yield to the disorganization and confusion which ensues after death;—their energy and struc-

sorbents had reduced them to their natural dimensions—See *Hunter on Inflammation.*

"They (absorbents) continue to receive and transmit their fluids after the heart and arteries have ceased to beat and the red blood to circulate"—"After the death of the animal, and after the phenomena of life have ceased."—*C. Bell.*

"Even after death, they (lacteals) expel the chyle."—*Haller.*

Query.—Are not dropsical swellings always sensibly diminished after the heart and arteries have ceased to act? Is the thoracic duct always found, on dissection, to be distended?

ture cannot resist chemical affinity, when it has acquired sufficient power to separate the elementary principles of the animal fibre; and the period of the cessation of their action might probably be fixed at that moment, when sphacelus attacks a living part, or putrefaction commences in the dead body.

In stating that the absorbents are only obedient to the stimulus of their natural contents, it was not intended to convey the idea, that their reaction depends on any stimulating *quality* of the chyle and lymph. It is more probably produced, and regularly perpetuated by the bulk of these fluids, operating *mechanically* on the coats of the lacteals and lymphatics, which contract to the stimulus of distention. The capacity of the absorbents is limited to the natural diameter of their tubes, and this is fixed by the unyielding structure of their coats and restraining valves; therefore, the exciting power of distention cannot be made to exceed that determined elevation. But the quantity of fluid, in these vessels, may be, and often is less than the capability of their canals to contain; still, as no other stimulus can interfere with that of distention, their contraction must remain uniform as to frequency, though it is variable as to force; for the power exerted is in proportion to the bulk of the distending fluid, which therefore, in both instances, is propelled with an equal velocity.

It was remarked, that the particular mode of

action, by which substances are imbibed at the extremities of the absorbents, is probably peculiar, and perhaps inexplicable.

It has occupied the attention, and divided the opinions of eminent physiologists. Want of observation, and perhaps difficulties arising from the very nature of the subject, render any opinion respecting it hazardous; for though plausible, still it must chiefly rest on conjecture. The most prevalent doctrine, at present, attributes absorption to a living action of, what is called, the mouths of the absorbents;—but although the alternate contraction and dilatation, which this hypothesis implies, could be proved to exist, yet it would be inadequate to the effect. It supposes the fluid to rush into the expanded mouths by its gravity; but the lymph could not thus enter the extremities of those absorbents which ascend perpendicularly from the upper part of the cellular cavities, without the assistance of such a contractile, or elastic power of the cellular membrane, as does not exist.

Several circumstances accompanying, and consequent to the process of absorption, together with some concurring facts in physiology in general, seem to favor the exploded doctrine of *Capillary Attraction.* Though it has been satisfactorily proved, that this principle cannot be applied to the whole extent of the absorbent canals, yet the philosophical objections are by no means decisive against its limited application to the extremities of those vessels, leaving the fluid, after

being absorbed to be propelled by an inherent; and, what remains to be proved, an independant muscularity. The structure of these radicles, to which alone the term *absorbent* is justly applicable, appears favorable to the supposition of their intrinsic action. They are composed of very minute and truly capillary tubes,—which soon become enlarged, or rather terminate in the more expanded canal of the main vessel,—where its muscular, or elastic contraction may be supposed to commence. In this respect, they are analogous to the termination of the tubes leading from the puncta lachrymalia to the lachrymal sac. As the action of these puncta must, at least, resemble that of the absorbents, the most obvious effects of the former may assist us in our conclusions respecting the nature of the latter. If the tears were imbibed by a vital action, we should observe a constant motion in the puncta; for alternate dilatation and contraction are the only living efforts by which a fluid can be successively admitted into, and propelled by a hollow muscle; we should, therefore, perceive them to open and close in regular succession; because it is required, that the impulsive contraction should commence at the surface, or the fluid would necessarily regurgitate at the extremity of the canal. But it is well known, that the openings of these puncta are permanently expanded, during life; except when (as in introducing Anel's syringe) they are occasionally closed by the surrounding muscular fibres, with

which they are evidently supplied to prevent obstruction, to which their exposed situation renders them constantly liable. The weight of the fluid may facilitate its descent through the opening into the lower lid; but no "successive effort of the columns" (*Richerand*) could enable it to ascend into the superior punctum. To say that "the tears are taken up by a real process of *suction*" (*ibid*) is, at best, a very enigmatical explanation. If then capillary attraction is required to explain the phenomena of lachrymal absorption, we may, by referring identical effects to similar causes, deduce from it a just analogical inference respecting the nature of absorption in general.

It may be objected, that the mouths of the absorbents give preference to certain substances in exclusion to others, which are in contact with them at the same time. But the objection itself is too questionable to be admitted as proof against the validity of the doctrine. Instead of that fastidiousness which is so generally, but perhaps gratuitously attributed to the absorbents, it appears that they take up substances of equal fluidity, with the same expedition, whether they are offered to them separately or in combination. A mixture of various ingredients, of equal solubility, is imbibed without any evidences of an active intelligence, or instinctive impulse in the selection. Acrid medicines are absorbed by the lacteals together with the bland nutriment; and poisons are admitted, by the cutaneous lymphatics,

in company with water. The apparent partiality of the lacteals for chyle, and supposed antipathy to fæcal dross, are simply the consequences of the first being composed of that part of the food which is most readily and completely dissolved, in the fluids of the stomach; and therefore most easily imbibed. They do not select the chyle from amongst the fluids which the exhalents pour into the intestines, during the operation of cathartics; for it is sometimes distinctly discovered in the fæces. When the contents of the primæ viæ become vitiated, in consequence of improper diet, or a disordered state of the stomach and bowels, the matter, notwithstanding, is absorbed; and often in such quantity, as to disturb the system, and even contaminate the whole mass of fluids, as in typhus. In all these instances, instead of any nervous attachments and antipathies, they evince a remarkable indifference and insensibility. The selection of any liquid, appears to depend rather on its comparative fluidity, than the exercise of a discriminating choice on the part of the vessels: hence water is sooner taken into the system than any of the fluids that are ordinarily drank. And it is a remarkable coincident fact, that water, according to Martin's philosophical experiments, ascends capillary tubes to a greater height, than milk, bile, urine, or any other fluid. This, together with "the exceeding great velocity of capillary attraction," (*Martin*) at the end of the tube immersed, accounts for the speedy removal of

repeated large draughts of water from the stomach; and also for the apparent increased absorption when it is injected in the urinary bladder: as in the experiment of Bedingfield. (*Compendium*, p. 242.)

The tenuity* of the substance absorbed appears to influence the quantity removed; which is also, in some degree increased when the stomach, bladder, and cellular interstices contain sufficient fluids to maintain a constant plenitude in the absorbent tubes;—hence the body acquires weight when exposed to a damp air, and especially when it is immersed in water. But these advantages only facilitate the labour, without accelerating the action of the absorbents; or the progressive advancement of the fluids they convey:—therefore, these changes in the result, can neither controvert nor invalidate the proofs that will be adduced in favour of their uniformity.

The *condition* of the substance acted on, is then to be regarded as the cause of occasional variations in the result of the process. The subsequent examination will show, that this principle can also be applied to the removal of the living solids of the body; that it affords a satisfactory explanation of every apparent irregularity in the absorbent vessels, which cannot be attributed to changes and alterations in their action, without admitting

* This is intended as a general rule. It would be difficult to ascertain, whether alcoholic liquors also constitute an exception in animal absorption, as they do in the attraction of capillary tubes.

irreconcilable contradictions in what may be termed, the fundamental laws of the animal economy, and thus create confusion in the grand scale of operation.

The principal proofs of the doctrine, of which a general statement has been given, require more minute investigation. It will be sufficient to particularize a few of those familiar occurrences, which most strikingly indicate that impassive nature, and independant action of the absorbents, which enables them to maintain the uniformity they constantly evince.*

When the body is excited by violent exercise, from exposure to high temperature, the use of alcoholic or other medicinal stimulants, and also during a paroxysm of anger, we observe a bloated state of the surface and soft parts beneath. This could not occur if the lymphatics partook of the general excitement, for they would remove the

* The doctrine of the uniform action of the absorbents, was accidentally suggested; and a number of plausible reasons at first concurred to invite a more particular inquiry. The original manuscript was written without referring to any author but I. Hunter, from whom objections were chiefly anticipated. The numerous facts and acute observations contained in his justly celebrated work, on the blood, served, notwithstanding his conclusions to the contrary, to strengthen the opinion. In consulting the opinions of some writers, somewhat particularly, respecting absorption, I have since found that C. Bell suggests a similar idea, in his strictures on Hunter's doctrine: but his observations appear to be, at least occasional, if not entirely dictated by opposition; which he seems to have regarded more than the consistency of his reasoning; for whilst he speaks of the probable uniform action of those vessels, he allows them to be subject to the agency of external causes; whereas the doctrine can only be predicated on their impassive nature.

intersticial exhalation, on which the tumid appearance in part depends, as rapidly as it is deposited. The lymphatics not only show an indifference to the agents of this excitement, by remaining unmoved during its violence, but also prove their superiority over the consequent languor:—for as mildness of temper succeeds the turbulence of rage, and as sure as a storm of the elements is followed by a calm, so must vascular action subside, as far below its ordinary standard, as it was previously excited beyond; and the reflux is attended by a proportionally less quantity of exhalent secretion. This gives an advantage to the uniform absorbents, and enables them to remove the unusual deposite, by their continued action, and reduce the body to its ordinary dimensions, by the time the circulation has recovered its former tone.

How could the application of a blister, or boiling water, produce vesication, if the cantharides and caloric irritated the extremities of both the lymphatics and exhalants? Would not the increased action of the one remove the redundant secretion of the other? And is not the fact, that the cuticle becomes separated and distended, a convincing evidence that the former is insensible to both? If drastic purgatives also irritated the mouths of the absorbents, would not the latter carry off the extraordinary secretion, which the exhalents pour into the intestines, and thus pre-

vent the liquid discharges per anum? The experiments, in these instances, are perfectly fair. The irritating substances are equally applied to both vessels at the same time, and under the same circumstances;—the result clearly and decidedly manifests the dissimilarity of character for which we are contending.

The above instances, which embrace some of the most active and diffusible stimuli, and also some of the most powerful external irritants, prove that the absorbents are insensible to the action ofstimulants.* But they also appear to be superior to the operation of depressing causes—even the most deadly narcotics.

When opium, or any other vegetable poison, is conveyed into the system, from the stomach or surface, the absorbents are not only first exposed to their paralising effect, but have also to sustain the attack of their concentrated powers; for they are less diluted, than after they have been diffused through the mass of fluids, in the circulation;—yet these vessels persist in conveying them after they have stupified every other organ, and suspended every other operation.

If the naked body be exposed to cold damp air or immersed in cold water, the capillary blood-

* Haller supposes the absorbents to be excitable by chemical stimuli, because they shrink on the application of sulphuric acid; but this more probably is the effect of the constringing quality of the acid, which it equally exerts on dry leather and on the living fibre. *Elements Phys. Lib.* II. *Sec.* III. §iii.

vessels soon become inactive and benumbed, but the increase of weight which the body, according to statical inquirers, continues to acquire, evinces that the cutaneous lymphatics persevere in their usual operation; and that they are not more affected in consequence of the abstraction, than from the increase of caloric.

The torpid effects of moisture, on the exhalents, is favoured during sleep by the calm, and somewhat languid action of the blood-vessels, and the body in that state acquires weight, though the quantity added by the lymphatics, is the same as when awake; because more is retained, than during the exercise of the day; and hence absorption is erroneously supposed to be increased in the night.

The blood-vessels of a paralized limb, lose their natural vigour, though they continue their action; but its progressive emaciation plainly shows that the strength of its lymphatics remains unimpaired. The different causes of every species of emaciation concur to lessen nutrition, whilst the existing animalized substance is proportionally diminished by the ordinary action of the absorbents. The consequent waste, which, on a superficial examination, appears to be owing to a morbid increase of their action, is only the effect of their unwearied diligence; and proves, that they do not suffer from that general debility, which is frequently the cause, and always the effect of atrophy.

When the body is reduced to an extreme degree of debility, by typhus fever; when a few feeble and indistinct efforts of life are the only remaining evidences of its existence, it is then that the practical physician acknowledges the independant nature and uniform action of the absorbents, by his solicitude to keep the bowels clear and skin clean, that these vessels may have no opportunity to aggravate an evil from which they alone are exempted.

When death is actually progressing, and after every action of the skin has ceased, the cutaneous lymphatics still persevere in removing the thinner parts of the fluid, which exudes through its pores, and cause that clammy and adhesive quality of the matter which collects on the surface, and obscures the sight of the dying patient. It therefore appears to be as erroneous to speak of inactivity and torpor of the absorbents, as it is useless to attempt any direct means to promote their action.

The friction with which external applications are accompanied, to accelerate their absorption, only produce that effect by mechanically bringing the substance in closer contact with the mouths of the lymphatics, in consequence of pressing it between the scales of the cuticle; which promotes the facility of absorption, but not the activity of the absorbents. The cuticle impedes absorption in proportion to the mechanical obstruction it occasions; hence, ointments, &c. are more

speedily removed from those places which are habitually moist; where the epidermis is the thinnest, and where it is accidentally abraded. But though there is a difference in the effect produced, yet the real capacity, and perhaps actual exertion of the absorbent mouths, (whatever may be their mode of operation,) may still remain the same over the whole surface; for it is manifest that the effect of the same power must vary if exerted under different disadvantages. Farther, if capillary attraction should be the mode by which fluids are made to ascend the minute extremities of absorbents in general, it is reasonable to suppose that they exert the same force in abstracting the moisture from more solid substances, as on the most perfect fluids; though a greater quantity is conveyed in this instance—minute division facilitates chemical action, yet the absolute affinity between bodies, containing equal quantities of matter, is the same in mass, as when reduced to atoms.

It may be objected to the impassive nature and uniform action of the absorbents, that they are subject to inflammation from animal poisons. But it is not improbable that the peculiarly virulent and subtile nature of these poisons, enable them to excite the surrounding nerves and blood-vessels, through the very thin and delicate coats of the absorbents, and thus inflame the parts in which these vessels are imbedded; and that the pain thereby produced, has been mistaken for an evidence that they are supplied with nerves.

But suppose, that the absorbents are really inflamed, in this instance; it follows, that though they possess an increased tendency to act, yet their action cannot be increased, in consequence of the turgid state of their coats from the injection of red blood.

The natural and healthy exercise of the animal functions furnish numerous proofs in support of the doctrine; and its physiological exposition is perhaps as novel as it is interesting. Without the prolixity of detail, it will be sufficient to examine the causes of the advancement of the body to maturity, and consequent decay; for however the particular actions of the different organs may vary, still the first is one of the grand results of their operation in assemblage;—the second a necessary consequence to the accomplishment of that object.

The progressive stages of life, from infancy to decrepitude; the growth of the body in youth; its stationary condition at manhood, and its gradual decline into old age, present familiar, but interesting appearances. In what manner is the balance of the absorbing and secreting vessels affected during the increase and waste of the body? Why do they acquire an alternate preponderance at different periods of life; and what causes the softness of texture in infancy, the firmness of fibre at manhood, and the rigidity of age? The vague references of physiologists to the activity,

vigour, and languor of *vascular* action, without determining both the absolute and relative agency of each system of vessels concerned; their remote and indefinite allusions to cause and effect, leave the explanation of the phenomena as unsatisfactory, as if they had attributed them to the arbitrary result of pure necessity.

If the sanguiferous and absorbent systems both possessed the same degree of excitability, and were equally susceptible of the impression of external stimulants, there would continually exist an equable balance of action, between the vessels which supply, and those which remove;—the action of both would be equally excited, in the early part of life, and sink, *pari passu*, into its decline; therefore no increase of bulk could occur in the former stage, nor that gradual diminution of matter which happens in the latter; consequently, the size of the body would remain stationary throughout, and we never could emerge from the state of embryo. It is well known, that nourishment and growth is accomplished by the assimilating power of the blood-vessels, still I do not know how we are to avoid the above ridiculous conclusion, unless we admit that the impassive nature, and uniform action of the lymphatics give the circulation the necessary ascendancy;—Grant this, and the process of animalization developes itself, with its whole train of consequences, and exhibits a more fair and definite character of some of those grand principles which form the basis of physiology.

The natural susceptibility and activity of youth, give the assimilating organs the preponderance at this age ;—an increase of size is the consequence. But, in order to proportion the different parts, so as to give symmetry to the whole, nature has conferred more or less activity on the blood-vessels of particular parts, together with the peculiarity of office which distinguishes each organ. As we approach the climacteric period of manhood, the mobility of the blood-vessels gradually settles into a more steady mode of action, in proportion as the system becomes less sensible to habitual impressions, and as the fibre acquires a denser structure and firmer tone. The less frequent, and more inconsiderable irregularities of the circulation, counterbalance each other, and leave a medium of action in unison with that of the absorbents. An equilibrium then exists between the two ;—the waste produced by the one, is repaired by the additions brought by the other ; and the quantity removed is equal to the supply. But the blood-vessels cannot maintain themselves at the equable standard of the absorbents ; for subsequent debility must follow previous excitement—a law, in which the animal body, with all nature must acquiesce. The active exertions, and rapid advancement of youth, as necessarily lead to the decline and imbecility of age, as subsequent languor is certain to follow the temporary exhilaration of ebriety : hence longevity is rare, where temperament or climate causes an early and rapid evolu-

tion of the organs; and speedy maturity, throughout all animated creation, denotes a short existence. Consequently, in advanced life, the circulation begins to be enfeebled; many-blood vessels become impervious, and whole organs are gradually obliterated;—digestion also becomes impaired, and nutrition is consequently imperfect;—the circulation being incapable of supporting the *peculiar secretion* (*Haller*) of the lymphatic glands; these, for want of excitement, are often entirely removed;—the uniform action of the lymphatics gives them a proportionate ascendancy; the more fluid part is first carried off; hence the solids become more dense, which again impedes the operation of the declining powers;—the whole body shrinks, till the furrowed brow and wrinkled visage leave traces of a waste which the blood-vessels are unable to repair. Corpulency sometimes supervenes—"a kind of *imitation* of real growth." (*Haller.*) But the decrepitude of age, and the approach of natural death, are not retarded by this delusive appearance; the struggling energies of life, unequal to the burden, often yield the sooner to its pressure. The apparent effects of natural decay, may also be obviated, for a time, by goading the blood-vessels to an extraordinary exertion by additional or more powerful stimulants; but the expedient only hastens exhaustion, and renders the body an earlier sacrifice to death. The duration of life, unless prematurely arrested, is limited to the es-

tablished bounds of that original capacity, with which nature has endowed the constitution; and its period will be shortened or protracted, according to the profusion or economy with which we spend the determinate measure of inherent energy;—though its enjoyments, like the transports of intoxication, may render us unconscious of its actual consumption, and regardless of the future consequences, yet the latter will eventually occur, as surely as the former is in present operation.

The steady persistance of absorbent action is also remarkable in the disappearance of those parts which are only designed for temporary purposes, as the thymus gland, membrana pupillaris, alveolar processes, &c. The idea, that a new activity is conferred on the absorbents, for the removal of these parts, does not accord with the usual simplicity of nature. It supposes the blood-vessels to continue an useless labour; for the object may be more directly, and expeditiously accomplished by diminishing the customary accretion. "Inutility, debility, &c." *(Hunter,)* are the assigned causes of such absorption. It is consistent with known laws, that such direct sedatives, as they must be, if their agency is not wholly ideal, should operate by paralizing the nerves and impairing the action of the blood-vessels. But it requires an effort of credulity to suppose, that whilst they depress every other power, they, at the same time, stimulate the absorbents. This im-

plies an effect directly opposed to their natural tendency—a contrariety of qualities, and a nature discordant with itself; or, a lawless disposition on the part of the absorbents, to act in direct opposition to principles which universally obtain in the organized fibre. In support of the probability of the first mode, and improbaility of the second, it is only necessary to direct the attention to the abundant proofs, already advanced, that the absorbents are not under the immediate controul, nor indirect influence of any accidental cause, whether of a depressing or an enlivening nature.

Pathology unites its testimony to the preceding facts, in favour of the doctrine. The causes, symptoms, and consequences of some of the most common diseases, unitedly point to the Uniform Action of the absorbents. If we regularly trace the progress of those diseases, through their different stages, and then take a retrospective view of all their phenomena, in connexion with the sensible effects of the remedies usually administered, we find ourselves conducted to that conclusion, as if, to an unavoidable and necessary result.—A brief examination of the nature and treatment of a few of those diseases, in which the absorbents are supposed to be particularly and primarily concerned, will not only elucidate the doctrine, but also show the extensive pathological application of the principles it embraces.

The commencement, progress, and termination

of, what is termed, *healthy inflammation*, are replete with facts, illustrative of the subject in question. I will only direct the attention to a few of the most prominent. The exciting causes of inflammation are all stimulants, and sometimes excite such violent action in the blood-vessels as to disorganize the structure of the part affected. But the absorbents so completely resist the most intense and concentrated exertion of their power, that the calm and steady action of these vessels, is not even noticed, amidst an excess which transcends their fixed standard; hence the tumefaction, (so far as it depends on increased interstitial exhalation,) which their uniform action renders them unable to prevent. But when the strength of the blood-vessels is spent in the inordinate effort, and they are sinking into consequent indirect debility, it is then that the absorbent action becomes more or less apparent, according to the degree to which the circulation subsides below its healthy range.

The terminations of inflammation, may truly be considered as indicative of the condition of the blood-vessels; therefore, adhesion, suppuration, ulceration, and mortification, may with propriety be regarded as general terms, denoting different stages, and serving to express the strength which the circulation retains, or the debility to which it is reduced, without reference to any change in the mode, or increase of absorbent action. The progress of these terminations is accelerated or retarded, and the appearance of each is diversified,

by peculiarities of constitution, and by the interterference of a variety of accidental causes, which it would be irrelevant to enumerate; the influence of which, on absorption, is to be estimated from their tendency to increase the debility of the blood-vessels.—When the strength of the system or a part, gradually fails, integrity of structure is maintained under the progress of absorption; as in general emaciation, the removal of the thymus gland, &c.;—but when vitality, from excessive action, or any other violence, is speedily reduced to the verge of extinction, or becomes exhausted beyond the ability of the blood-vessels to furnish an adequate supply to preserve the organization of the part entire, then the progressive and unresisted depredations of the absorbents, not only produce a diminution of bulk, but also an erosion and separation of parts:—An ulcer is the consequence; which extends more rapidly, as the debility of the part approaches nearer to mortification. And when mortification actually occurs, the absorbents give new proofs of their unremitting perseverance in the speedy separation of the dead and living parts, as soon as the blood-vessels have acquired sufficient strength to arrest the progress of decomposition. It appears, therefore, improper to consider ulceration, as "a *substitute* for mortification," *(Hunter:)* it only indicates an approach to that condition.

Hence it appears to be incorrect to employ the terms, *progressive*, *interstitial*, and *ulcerative* absorp-

tion, to designate a change of condition, or peculiarity of action in the absorbent system, since these different appearances are essentially imputable to a comparative deficiency in nutrition. The real state of the ulcerated part teaches, that the supposed increase of absorption is only apparent; that *ulcerative* absorption is not "a *morbid* process," *(Thompson,)* but a natural, and in itself, salutary action, apparently rendered morbid by the *unhealthy* condition of the part in which it is exerted; and that absorption, though the proximate, is not the *morbid* cause of ulceration. If increased absorption were the most efficient cause of ulceration, then the matter from an ulcerated surface would only vary as to its degree of consistence; but as there is an evident change in its quality, corresponding to the slower, or more rapid progress of the ulcer, it follows that the secreting exhalents are chiefly concerned in the diseased process.

The exciting causes of every species of ulceration which Hunter enumerates, have all a tendency to produce that debility which he admits to be "the basis of every other cause of the removal of whole parts." It is on this account that parts most distant from the centre of circulation are most subject to ulceration; and that recent and adventitious formations are more liable to be absorbed, than those which are original.

Irritation, which is the effective agent of Mr. Hunter, can only indirectly promote absorption, by deranging the enfeebled powers of assimilation,

and superadding a morbid, to a weakened action; hence the more irritable the ulcer, the more rapidly does it extend. Its character also, whether simple or malignant, and the varieties of each, depend on the nature and degree of the irritation, together with the peculiarity of action it may excite in the exhalents. Opium proves beneficial, especially in simple ulcer, by allaying this morbid irritation; but not by promoting absorption as Darwin was led to infer, in consequence, I presume, of entertaining the very singular opinion, that "no ulcer can heal, unless the absorption from it, is as great as the deposition in it."—(*Zoonom.*) Irritability, moreover, could not be conducive to absorption; for it is known that irritation weakens the tone, and injures the healthy functions of an organ. This fact would rather induce us to expect that irritability in the absorbents would prevent the waste of a part, on the same principle that such a state of the blood-vessels increases the evil under which it suffers.

It is admitted by Hunter, that absorption requires a passive state of the part:—"a condition incompatible with its existence," but the whole tenour of his observations on ulceration, is to prove that the waste chiefly, and almost exclusively depends on the accelerated action of the absorbents. In referring results to a "new activity" in these vessels, which are manifestly the consequence of defective nutrition, he was obliged, by refined, if not abstruse reasoning, to attribute a sti-

mulating quality to such novel and problematical agents as, *removal*, *necessity*, and *death*. But this conclusion is not more strange, than the extensive and arbitrary application of the term *sorbentia*, by Darwin; who ascribes to such immediate sedatives, or rapidly debititating narcotics, as opium, digitalis and tobacco, the reverse power of exciting the absorbents. The doctrines of both, respecting the nature of absorption, imply a more incredible peculiarity in the absorbents, than that of their uniformity;—viz. the disposition of being excited and invigorated, in proportion as the power of every other part becomes enfeebled and exhausted. And the fact, that absorption progresses in such conditions of the body, as languor, exhaustion, palsy and death,—and during the operation of medicines producing these conditions of the system, requires, that we either allow those vessels that unnatural susceptibility, or admit the exclusive independence of their powers, and uniformity of their action. Those, who are inclined to reject the latter, as visionary, should reflect, before they decide, on the paradoxical and repugnant alternative which they will be compelled to adopt.

Dropsy appears to offer serious objections to the Uniform Action of the absorbents. The effusion seems to contradict the opinion that they are not subject to torpor; and it may be thought, that the usual method of cure refutes the doctrine that

they are incapable of being excited. But an unbiassed examination of the pathology and cure of this disease may show, that in this, as in other instances, the fault of the circulation is charged to the absorbents; and that the sensible effects of the action of medicines on other organs, are strangely attributed to changes which they could not produce in the absorbent system, even if its vessels were susceptible of their action. Our remarks will be confined to dropsy, when a disease of the system, and consequent to debility:—the same general mode of reasoning will apply to it when partial; and there can be no controversy respecting the vessels concerned, when it is occasioned by either plethora or obstruction.

The remote debilitating causes of the species of dropsy under consideration, the enfeebled and relaxed state, and I will venture to add, the peculiar morbid action or dropsical *tendency* of the blood-vessels, enable us to account for the watery profusion with which the system is inundated, without calling in the really foreign aid of the absorbents. The disappearance of fat, and the progressive emaciation attendant on this disease, also evince that the lymphatics are neither torpid nor indolent. But the nature of the effusion affords the most convincing and conclusive proof:—its quality differs from the ordinary healthy exhalation; hence it must be a *morbid* secretion, and shows, that it not only depends on relaxation of the blood-vessels, but also on a disordered condition of their

exhalents. If, in connection with these facts, we reflect, that the extremities of the absorbents, in consequence of being continually immersed in the dropsical fluid, can preserve a constant state of repletion, and convey the full measure of their capacity, it appears probable, that even more than the usual quantity of fluid is imbibed during the dropsical accumulation. The removal of the effusion in the case of protracted death, which has already been quoted from Hunter, proves at least that, instead of any torpor, the action of the absorbents is regularly continued in dropsy.

To promote absorption is one of the chief indications of cure in this complaint. But it is difficult to conceive how the remedies that are generally administered, could have the intended effect, even if the process could be expedited by stimulants. They must either act directly on the absorbents by their presence, or their action must be extended to those vessels through the medium of sympathy. The improbability of either has already been anticipated. The most general and powerful stimulants have not evinced any perceptible effect; and we might, from that consideration alone, infer an equal insensibility to the action of such as are partial in their operation; even if they could arrive at the lymphatics with their composition unchanged. But since they cannot reach those vessels without being subjected to the peculiar secretory action of the exhalents, it is most probable that their qualities must be materially

altered in consequence of being assimilated to the product of that action; and, moreover, subject to all the variety to which a secretion is liable. If they still retain their stimulating power, it must be equally exerted on the exhalents, and thus defeat the object for which they were administered. It is still more improbable that any associated action is extended to the lymphatics;—it would require an extraordinary, and truly mysterious influence of sympathy, to excite a corresponding effort in a part which does not suffer from paralysis, or division of its nerves.

There is no necessity for attributing uncommon powers to the medicines generally administered in this kind of dropsy. If it be only granted, and the concession is certainly consonant with fact, that diuretics, cathartics, &c. act on the same parts, and in the same manner, when given in this disease as when administered in other complaints, we will then not be perplexed with inconsistencies in accounting for their beneficial effect.

The most probable operation of diuretics will illustrate this position. The disease consists in a *local determination* of a *general morbid tendency* to inordinate serous effusion or secretion. Diuretics, by stimulating the kidnies, produce a *counter* local afflux of the fluids to these organs;—and as the increase of one secretion diminishes the quantity of others, hence we find a dry, harsh skin, and paucity of urine in dropsy. By exciting the kidnies, the general current is diverted from the cel-

lular interstices and internal cavities, to the urinary organs:—the exhalents, being thereby relieved, remain almost inactive; and their cessation allows the uniform lymphatics to diminish the existing effusion with sufficient rapidity to account for the diminution of bulk. It follows, as a general deduction, that the subsidence of the dropsical accumulation is an indirect consequence of increased urinary action.*

The effect of emetics, cathartics, and such medicines as operate on all the emunctories, like mercury, can be satisfactorily explained on the same principles.

The disappearance of large accumulations in a short space of time, will form no objection to the general doctrine. It is a fact, well attested by observation and experiment, that the absorbents are naturally very active. The known velocity of capillary attraction, (should that be the mode by which the fluid is imbibed,) is equal to the effect; and we might, with propriety, adduce the rapid absorption of tears as a striking example. But independent of this consideration, the sudden removal of dropsical effusions will not surprise, when it is recollected how speedily large quantities of water are taken up from the stomach; and how

* The diuretic effect of digitalis, probably depends on the torpor it produces in the blood-vessels; thus suppressing the action of the exhalents, and arresting the progress of effusion;—whilst the continued action of the absorbents accumulates the serous fluid in the blood-vessels, which excites the kidnies in proportion to its quantity. Thus, though the mode of operation is different from that of other diuretics, yet its effects are the same.

expeditiously smaller collections of lymph or pus are removed from circumscribed cavities, and the cellular membrane, when the action of the exhalents is either suppressed or diverted. Hence the benefit of emetics in these and similar cases; for it is more than improbable that tart. antim. excites the absorbent system in particular, whilst it relaxes the body in general. The irritation it produces, causes a general determination of the humours to the stomach, whilst the nausea it creates, occasions a languor and inaction in the exhalents of the secreting surface; consequently, the absorbents continue unopposed in the removal of what is already deposited.

Pressure is supposed to expedite absorption by some directly accelerating effect; and this opinion is rendered plausible by the advantage which is derived in dropsy from bandages and tight lacing. But the real effect of these applications, probably, consists in restraining effusion, by resisting the distention of the cells, and impeding the action of the exhalents. Pressure may be so firmly applied as to suppress the action of the exhalents almost entirely, and yet leave the absorbents unobstructed and operative;—this is exemplified in the rapid ulceration of the prominent parts of those who are long confined to a horizontal position.—Again, a certain degree of pressure may, by supporting the debilitated blood-vessels, relieve the morbid action of the exhalents, and induce a more healthy and vigorous tone in those vessels;—on this, the benefit of

rollers and adhesive straps in ulcers appears to depend.

These opposite effects of pressure justify the conclusion that it operates by modifying the condition, and varying the action of the blood-vessels; and if this be conceded, the *Uniform* Action of the absorbents, which it necessarily implies, must also be admitted.

MEMOIR,

ON THE SUBSEQUENT TREATMENT

OF

INJURIES OF THE HEAD,

ILLUSTRATED BY CASES.

BY VALENTINE MOTT, M. D.

Fellow of the Society.

Read the 3d of September, 1816.

A CORRECT knowledge of the principles of union by adhesive inflammation, is of primary importance to the practitioner of surgery. It forms one of the boldest features of modern surgery, and will long maintain an exalted rank among its improvements. Delighted with its effects, perhaps we have rather slighted the second mode of healing, or that by granulation. This slow, and commonly less satisfactory process, is often greatly impeded by the officious interference of art. The dissecting knife and injection, have now satisfactorily developed the phenomena which attend and favour the formation of granulations, as well as a knowledge of their intimate structure. We frequently avail ourselves of this knowledge in the

progress of healthy granulations, and expedite the cure by the adhesive inflammation. This is most admirably effected by the recent and invaluable practice of adhesive straps.

All superficial and healthy ulcers require but little assistance from art. Nature, for the most part, is fully adequate to every demand: perhaps what is done, often does harm, and might rather be omitted. The original and thinking John Hunter has remarked, that all sores or ulcers (he no doubt means healthy ones,) heal sooner under a scab, than under the neatest surgical dressings; and subsequent experience, we think, confirms the truth of this assertion. In unhealthy constitutions however, in those whose habits are scorbutic, syphilitic or carcinomatous, the same rule will not obtain;—instead of favouring the cure, it would greatly retard it, by the confinement of acrid and virulent matter; thus irritating and spreading the sore, and still further contaminating the general system.

Most practitioners must have observed, that every stage of healing is frequently interrupted by the interference of art. This takes place from adhering undeviatingly to the common custom of renewing the dressings after the fourth day, when adhesion by the first intention is expected or wished; and from daily or oftener changing the dressing during the granulating process, particularly that of the skin, termed cicatrization. In the latter instance, we frequently find great difficulty when an ulcer is completely filled up, and only a small

point remains to be cicatrized. Our daily dressing, by washing and wiping such a sore, is calculated to protract and lengthen the cure. In these cases, if lint can be made to adhere for a few days, or a scab allowed to form, experience justifies my saying that the cure will be almost immediately effected. By deferring the first dressing for a longer time, and repeating the subsequent ones less frequently, an important step will be made in the great process of healing by the first and second intentions.

There are perhaps no severe injuries, or operations in which the correctness and excellence of this treatment is more conspicuous, than those to which the *head* is subject. All injuries of the head, beside a common, have superadded a peculiar danger; which is well known to be inflammation, and may arise as an immediate or remote consequence of great or trifling violence done to it. To guard against inflammation of the brain, in all injuries and operations on this part of the body, is the most prominent and leading indication. The after treatment from operations as well as injuries, we deem by far the most important. To secure the success of those cases, in which large portions of the cranium are depressed, the membranes lacerated, and perhaps some of the substance of the brain itself discharged, more will depend upon local treatment after the operation, than upon the operation itself. Most surgeons are in the practice of dressing cases of this

nature, after the usual period of four or five days. At this time it is well known, that very little suppuration has taken place; the dressings are torn off with difficulty, and the already tender and irritated surface, is thereby excited into inflammation. If renewing the dressings were entirely free from danger, there is another important reason why they should not be removed at this time, and particularly if a large portion of the cranium has been taken away. The brain by this time has become accommodated to the pressure of the first dressing, and feels no way impatient under it; therefore, besides the irritation attendant upon the removal of the first, the pressure of the second cannot be so nicely graduated, as the tender brain at this time so imperiously demands.

We ought to let the common period of danger from inflammation, in all considerable injuries of this part of the body, pass over, regardless of the season of the year, before the first dressings are removed. It is well known to practitioners that, as a general rule, inflammation will supervene before the twelfth day; and as a general practice, the head should not be dressed till the fourteenth or sixteenth day from the time of the accident. The subsequent dressings may be removed every fourth day, or oftener, as the granulations may require.

At this protracted period of the first dressing, a considerable part of the wound will have become united by the first intention; and the union by granulation will have so far progressed, as to leave

little more than cicatrization to a small extent, to complete the cure, and which is commonly effected in a few more dressings.

The utility of this treatment does not rest upon a single or an individual example; it has been tested by more than one practitioner in a number of instances.* The three following cases, which have occurred in my own practice in the order they are related, also exhibit very strikingly its propriety.

Case 1.—Wm. Brewer, aged 15 years, received a blow upon the head by the crank of the windlass upon a steam-boat wharf; as the boat struck the sliding bridge and rebounded, the windlass revolved with great velocity; and in the attempt to take hold of the crank, he was struck upon the head. I saw him in about half an hour, when he had recovered a little from the shock, and appeared to understand when a question was put to him, though he spoke with difficulty. The pulse was natural—breathing and eyes were very little affected—and the pupils perhaps rather contracted. He had been bled from the arm about ten ounces, by a physician; this almost instantly removed the stupor occasioned by the first shock. His head was greatly swelled, particularly on the left side, and had a very elastic puffy feel. There was no

* It is to the practical acumen of Richard S. Kissam, M. D. one of our most eminent surgeons, that I am indebted for the first idea of this practice. He has been for many years in the habit of treating injuries of the head in this manner, and his success has been almost unexampled.

wound through the integuments; the only external injury was a slight abrasion near the anterior inferior angle of the left parietal bone. Being some distance from home, he was conveyed thither in a coach, and as he rode along would read the signs upon the houses and reply correctly to questions. He would frequently say, "this would never have happened, if I had taken my mother's advice and staid at home."

After arriving home he was at times perfectly rational. His head being shaved, an incision was begun a little above the left ear, and carried upwards to the extent of three or four inches. Immediately under the scalp was a coagulum of blood, of an inch in thickness, which covered almost the whole of the left side of the head. On passing the finger through this, the cranium was found extensively denuded of the pericranium, and depressed to a great extent; and in one part to such a degree, that the forefinger could be insinuated between it and the undepressed bone.

With the elevator, four pieces of bone were readily removed, but the trephine was once applied to take away the largest piece, and afterwards the elevator was used to remove several smaller portions.

The dura mater was lacerated about an inch along the course of the longitudinal sinus. The spinous artery of the dura mater was also lacerated about its commencement upon the parietal bone, and in several other places; it bled freely,

but gave no trouble, and required no particular attention.

After removing all the depressed part, a large fracture was discovered to extend from the upper part of the opening down towards the other ear. It was sufficiently large to receive the handle of a scalpel, and was traced an inch or two from the opening;—it was apprehended, from the size of it, that there might be more depression, but it could not be discovered. From its size, there is a probability that it extended to the basis of the cranium; and it actually appeared to have separated the sinciput from the occiput in a line from one ear to the other.

The edges of the wound were brought as near together as the coagulum would admit, and retained by adhesive straps: over these, lint and a compress of linen were applied, and the whole retained by a night-cap.

During the operation, his father came into the room, and said it was no use to do any thing more, as he was already dead. To which his son replied immediately—"I am not dead, and am not going to die." After the operation it was discovered that the right arm and leg were paralytic. He was conveyed to bed in a dark apartment, and directed to be kept as quiet as possible. At 10 o'clock in the evening he said he felt comfortable, and had but little pain in his head.

On the following day the pulse was a little excited; he was rational, and slept some during the

night. His stomach being sickened, and having vomited several times, an enema was given; in order to prevent the stomach from being affected, his bowels were evacuated daily by injection. His diet was directed to be of the mildest kind, and free from any thing of a stimulating quality.

On the fourth day he began to complain of a tingling pain in his right arm, and was able to move it across his breast; this increased gradually, so that by the end of the first week he was able to shake hands with his attendants. The leg next began to recover in the same way; and in about ten days from the accident he was able to draw it up in the bed. On the fifteenth day I dressed the head, for which he rose out of bed and seated himself in a chair opposite the light. Union by the first intention had taken place to a small extent, the granulations had filled up the wound completely, and were of the healthiest character: all the coagulated blood was removed. Every thing went on well, except that the granulations required a little argentum nitratum a few times for their exuberance; and the wound was healed in eight weeks. For the last three or four weeks he was out, and several times called upon me to have his head dressed.

After it had begun to cicatrize, I measured the extent of the incisions:—That which extended across the head was nine and an half inches; the other from the middle of this extending towards the occiput, was about four inches. The length

of each would, no doubt, have been greater at the time of the operation, before the contraction attendant upon cicatrization, had taken place.

Case 2,—*June* 20, 1815.—Was requested early this morning to visit Thomas Williams, aged ten years, who had fallen from a stoop leading into the second story of a house, about fifteen feet high. He struck upon some round paving stones which covered the yard, with his side, and the side and back part of his head. When taken up he was entirely insensible, and appeared to his friends to be dead. It was about three fourths of an hour after the accident, before I saw him. I found him lying on his side, and when an attempt was made to move him he appeared very much offended, though he did not speak. The pulse, breathing, and eyes were all natural; and there was no vomiting.

On the lower and middle part of the left parietal bone was a considerable tumour of the scalp, and a very small wound. The sensation to the feel around the tumour and wound, left no doubt (as far as the feel can be depended upon in these cases,) that there was a fracture with considerable depression of the cranium. At this kind of treatment he complained a good deal, and requested to be left alone; the stupor which was first produced having now entirely gone off.

To ascertain the state of the skull, I made an incision to the extent of about two inches, which

enabled me to introduce my finger, and even see the fracture and depression.

It became necessary in order to make the requisite divisions of the scalp, and to ascertain the extent of the depression, to request the assistance of five of the bye-standers, in order to confine him.

The depression was such, that with the elevator several pieces of bone were removed. The trephine was applied three times before all the depressed part could be elevated or removed, so as to take off all pressure from the brain. The trephine was applied twice to the parietal bone, and once upon the os occipitis, opposite the posterior and inferior angle of the parietal bone. Eighteen pieces of bone were saved during the operation, and no doubt some of the smaller were lost. Two large pieces were elevated, and appeared so firm that it was not deemed necessary to remove them. A large *crack*, (for it would admit the handle of a scalpel,) extended from the anterior part of the depressed portion, and from the size of it, and the distance it was traced, it in all probability was continued into the left orbit.

Another fracture, not so wide as the first, went through the squamous part of the temporal bone, and may have terminated in the petrous part of the same. It was extremely difficult to remove and elevate the injured portions of bone, owing to the extent of the surrounding injury, and motion, as it were, of the whole side of the cranium. The fulcrum of the old cases, would have been an ex-

cellent instrument in this operation, by resting at a distance upon the sound bone.

The dura mater under the os occipitis was lacerated about an inch in extent.

The head having been extensively shaved, the wound of the scalp was nicely drawn together, and retained by straps of adhesive plaster. The incision in the scalp resembled an inverted T; it was easily made to coaptate, except that part which extended transversely across the temporal muscle. At this place there was a trifling retraction of the edges, notwithstanding the plasters. The hæmorrhage was considerable from the necessary division of the posterior branch of the temporal artery, and a large branch, if not the trunk, of the occipital artery. Over the straps of adhesive plaster, a large quantity of soft scraped lint was applied, with a thin compress, and the whole secured by a night-cap, so as to avoid all pressure upon the brain.

He was now conveyed to bed, the room was darkened, and all noise directed to be guarded against. When told that the operation was over, and he was to be dressed, he was pretty easily controuled. His hands were secured together to prevent him from tearing off the dressings.

Before the operation was completed, the pupils of both eyes were considerably dilated, and almost motionless, and continued so for two days.

The night after the operation, he was very rest-

less, constantly tossing himself about the bed. The following morning, and occasionally during the next and succeeding days, he was affected with retching, but it did not amount to complete vomiting. He appeared to understand when spoken to, but could not articulate a word for two or three days; and when he began it was in a low whisper, and with an awkward and clumsy motion of his tongue. Indeed it was evident that he understood before this when spoken to, as he would answer by a significant motion of his head.

The arterial system was very little affected; his pulse for eight or ten days after the operation was about a hundred strokes in a minute, but not the least tense. His tongue was moist and clear from the beginning to the end of his confinement. He did not complain of any thing, but a soreness in his head, at any time from the operation;—his bowels were kept open by the daily use of an enema. His diet was of the mildest kind, consisting of gruel, barley and toast-water:—this course was rigidly observed.

On the twelfth day from the operation, he was walking about the room, and did not complain of any thing but weakness.

On the morning of the sixteenth day from the injury, I dressed the head. Every part of the wound was healed by the first intention, except about half an inch of that part which went through the temporal muscle;—here were two granulations, each about the size of half a pea, which was the

only suppurating surface to be seen. It was dressed with a small pledget of simple cerate.

The head was again dressed on the nineteenth day from the operation, when it was completely healed at every point of the incision. The faculties of his mind, and the functions of his body did not appear to be in the least impaired. For the general debility, he was recommended a more generous diet, and directed to take a little cinchona daily.

Case 3.—The subject of this case is James Carr Cochrane, aged about ten years, whom I was requested to visit, in consequence of having been kicked by a horse. It happened about an hour and an half previous to my arrival. I found him lying on a bed, with his eyes closed, breathing easily as if in a natural sleep;—the eyes and pulse were natural. Upon being roused, he appeared very much irritated, and was unwilling to be moved. When interrogated, he replied that his head hurt him a little.

On examination, a small wound appeared a little above the left superciliary ridge, which had bled very considerably, and from which issued small pieces of a soft white substance, having on examination every appearance of the substance of the brain. To the feel externally, there appeared to be an extensive fracture with depression of the cranium. This was made evident by making an incision of the scalp so as to include the laceration in its course, and by which the os frontis was found extensively depressed. A second incision exposed

the whole of the depressed portion of bone. The depression was so considerable that by means of the elevator alone all the injured part was removed, amounting in all to fourteen pieces. A considerable portion of the lower and anterior angle of the left parietal bone was removed, by which the spinous artery of the dura mater was lacerated in several places; and from which a very considerable hemorrhage took place. The meninges were torn to the extent of nearly two inches, from which the cerebrum was constantly discharging; and from appearance, there must have been nearly two tea-spoonfuls of this substance lost.

During the operation he was so intractable, as to make it necessary for several persons to assist in confining him.

The wound was dressed with adhesive straps, lint, and a night-cap, in the usual way, and the patient put to bed. Strict orders were given to keep him in a dark apartment, to avoid all noise of company—in a word, the most antiphlogistic treatment was enjoined.

He vomited several times during the first twenty-four hours after the operation. The pupils of both eyes were very much dilated for two or three days.

Not a single unpleasant symptom arose during the recovery of our patient. His bowels were daily opened by means of an enema, for the first week, and afterwards occasionally.

On the sixteenth day from the operation the

wound was dressed. It had all united by the first intention, except about half an inch in extent, which cicatrized in a few days by the use of a little argentum nitratum to repress the exuberant granulation. He sat up in a chair to have the first dressing removed, and had been walking about the chamber for several days previously.

ON THE USE

OF

DATURA STRAMONIUM,

IN CERTAIN DISEASES.

BY ALEX. READ, M. D.

Corresponding Member of the Society.

Read the 13th of December, 1816.

Every patriotic physician ought to feel a peculiar interest in extending the knowledge of the natural productions of his country. It is a common observation, that every country produces an antidote for its diseases. Whether this be true or not, as it respects the United States, it is sufficiently proved, that we are in possession of numerous plants, the important virtues of which, are already known, and probably many others of equal value remain to be discovered.

In the list of indigenous vegetable productions, the medical properties of which are, at least, partially known, Datura Stramonium, or Thorn Apple takes the first rank. In point of utility it is little inferior, and in power, quite equal to the noble

exotic Papaver Somniferum. If it is not applicable to as many cases of diseased action as the latter, its superior efficacy in some of the most distressing maladies to which the human system is liable, renders it nearly as valuable.

With regard to the best preparations of this plant for medical use, some difference of opinion has existed. Some practitioners have preferred the seeds, some the leaves, others the extract of the leaves. The celebrated Dr. Storck, who introduced this plant into medical use, first prescribed either an extract, or the inspissated juice of the leaves. Drs. Shippen and Rush usually gave the powdered leaves, in epileptic and maniacal cases, in the Pennsylvania Hospital. They sometimes prescribed an extract of the leaves. The seeds in powder are a favourite prescription with some; a formula of which is given by Dr. Archer of Maryland. He directs a scruple of the pulverized seeds, half a scruple of flour, and a sufficient quantity of water to be well mixed, and divided into ten pills. A better form, perhaps, consists in mixing the pulverized seeds with gum arabic or myrrh. The tincture of the seeds is a convenient form; especially for children. Two ounces of the seeds may be infused in a pound of diluted alcohol, and from ten to twenty drops given for a dose. All of the above mentioned forms have been used with success. The extract, however, seems to possess some advantages over the other preparations. The most important of these, is the uni-

formity of its operation in a minute quantity. Objections have been made to the extract as possessing less uniformity of strength, than the seeds or dried leaves. This holds true, only when it is improperly prepared, by boiling leaves, stalks, and roots together. When obtained in this way, it possesses, comparatively, but little power. To obtain an extract of great and uniform strength, the following mode may be pursued: select any quantity of the most perfect leaves, in the time of flowering, and boil them in water during three or four hours; strain the decoction, and evaporate with a gentle heat until it has acquired the consistence of syrup; place this in a warm oven in a glazed earthen vessel, until it becomes of a proper consistence for use. An extract prepared in the foregoing manner, I have found uniform in strength and possessing extraordinary power. I have seldom found patients able to bear more than one third or half a grain at first, and never more than a grain, after having taken it a long time. In irritable habits, less than the preceding quantity has produced very perceptible and decided effects. According to my experience, patients do not bear an increase of the dose of Stramonium to the same extent, that they do of other narcotics. I have prescribed the extract for months in succession in an obstinate epilepsy, and could never increase the quantity more than half a grain without producing disagreeable consequences.

A form in which Stramonium has been much used, as an external application, is an ointment prepared by boiling the leaves in lard. This has proved serviceable in rheumatic pains; in external inflammation, and in piles. By adding a small quantity of wax to the above ointment, a cerate is formed, which I have found highly beneficial in burns and scalds. In one case of very extensive ulceration from this cause, I used this cerate with decided advantage for some time; after which, it seemed to lose its effect, and the cure proceeded rapidly under the use of a cerate prepared with sulphate of zinc.

The tincture of Stramonium has, likewise, been used in rheumatism, and seems to relieve by producing an eruption on the skin. The tincture and the expressed juice have been employed in a diluted form, in affections of the eyes. The fresh leaves are often successfully applied, by the common people, for external inflammations. They have been found of great utility in dysentery, when applied heated to the bowels; likewise, in chronic inflammation of the eyes, applied to the temples, and near the parts affected. A decoction of the seeds is a valuable remedy for removing the pain and irritation attending blisters.

As an internal remedy, Stramonium takes an exalted rank. The diseases, in which it has been principally used, are epilepsy, atonic mania, asthma, spasmodic cough, pertussis, phthisis pulmonalis, amenorrhœa, and chorea. To this catalogue,

I shall add tic douloureux, or neuralgia of the face; with what propriety, will appear in the sequel.

The Stramonium has been celebrated for its curative power in *epilepsy*, from its earliest use in medicine. The united testimony of modern physicians agrees in ascribing important effects to it in this disease; perhaps, superior to any other article at present known. Like all other medicines, it sometimes fails to effect a cure; but less often to produce some abatement of the symptoms, or a temporary suspension of the paroxysms. Those cases seem to receive the greatest benefit from it, in which the paroxysms return at regular periods, and at short intervals. When the fits have continued after the age of puberty, in young persons, or the intellectual powers have become weakened by their continuance, a cure cannot be expected from this, or any other medicine. The extract is the most convenient and efficacious form in which Stramonium can be given in epilepsy.

Half a grain, as a medium dose, may be given twice a day, and increased as the patient can bear it. It is stated, that Dr. Barton gave 15 or 20 grains of the extract in a day,—having begun with a few grains. It is doubted whether many patients will be found who can bear a tenth of this quantity, if properly prepared. Some practitioners prescribe chalybeates, at the same time, with Stramonium. This may be proper in some cases, where particular symptoms indicate their use. Evacuations, by

venesection and cathartics, may sometimes be advantageously premised, especially in plethoric habits.

The following case may serve to illustrate the efficacy of Stramonium, unassisted by other remedies, and attended with unpromising circumstances.

A lady of 35 years of age, of a pale leucophlegmatic appearance, with œdematous swelling of the lower extremities, had been afflicted with epilepsy about thirteen months. The extract of Stramonium was prescribed, in doses of a grain, twice a day. It produced decided effects on the system, occasioning dimness of sight, nausea, headach, ptyalism, and diuresis. The œdema almost immediately subsided, and the paroxysms ceased.

In February, 1813, B. C. aged 12 years, of an irritable fibre and full habit, was attacked with epilepsy: the fits occurred every fortnight, and usually came on in the morning before waking from sleep. After evacuating the stomach and bowels, half a grain of the extract of Stramonium was given twice a day. This produced sensible effects, as dilatation of the pupil, vertigo, nausea, &c. The paroxysms soon ceased, and a radical cure was confidently expected, though the use of the medicine was not discontinued for some time. About four months after the Stramonium was entirely relinquished, the fits returned, though at irregular and longer intervals. The medicine was again resumed, and the paroxysms ceased, and

never returned while the system was kept in some degree under its influence. When this was discontinued a few weeks, they reappeared, and again yielded to the same remedy. In this case the Stramonium seemed only able to suspend the fits, while the system was under its influence; and was not sufficiently powerful to sever that catenation of morbid action, by which they were induced.—Several other medicines were prescribed with little effect, except the ammoniaret of copper, which suspended the paroxysms for a short time.

In spasmodic cough, and asthma, Stramonium has been used with different success, according to the testimony of respectable authors. Dr. Bree states, that he has tried the extract, but his experience did not encourage the practice of giving it generally in cases of asthma. The celebrity of this author, in diseases of the respiratory organs, must attach considerable weight to his opinion.

Of late, much has been published respecting the relief and cures of convulsive asthma, effected by smoking Stramonium. Some of these cases seem well attested, while others wear a doubtful aspect. From all that can be collected on this subject, it appears, at best, a doubtful and often a dangerous remedy. Dr. Bree had occasion to examine, in four months, no less than 82 cases. The patients were all disturbed in their breathing; but a part only were truly affected with convulsive asthma. To the whole number, the remedy had been either useless, as it regarded the re-

moval of the disease, or it had produced injuries or fatal effects.

It has been suggested by Dr. Sherwen, that every good property of the Stramonium, may be expected, from a similar use of the common white poppy head, the smoke of which, whether swallowed or inhaled, must be equally anodyne and less deleterious. From the dried leaves of digitalis purpurea, he thinks that similar effects would result, especially in that species of asthma connected with œdematous ankles, irregular pulse, and other symptoms of hydrothorax.

For the use of Stramonium, in that distressing disease called *tic douloureux*, or *neuralgia* of the face, I know of no authority. I have seen no account of its having been used with success. My experience, however, will tend to establish one fact, that some cases of this dreadful malady, may be cured by Stramonium. Sufficient evidence will be adduced, I trust, to give this a respectable rank with other medicines that have been employed in this disease. The first case, that came under my notice, was in 1811. Though I had never seen a case of this kind, it was readily recognised—so strikingly marked were its pathognomonic features. Indeed, in most cases, little danger of confounding this with other diseases can exist; so indescribable is the suffering, and so far transcending other painful affections. The above mentioned case was a lady of 33 years of age, of a very delicate habit and irritable fibre. Nearly four years

had elapsed since the commencement of the complaint; during which time, it had been gradually increasing in severity.

The left side of the face was the seat of the complaint; but sometimes a slight degree of it was felt in the other side. The paroxysms of pain were exceedingly excruciating, and recurred at uncertain intervals. The pain extended from the cheek over the temple and eye, and to the lower jaw and muscles of the neck. After the paroxysm had continued for some time, a slight redness was discoverable upon the cheek, and particularly upon the neck. The paroxysms occurred most frequently in the day, but often in the night. Sometimes they came on without any evident exciting cause; at others, in consequence of change of temperature, slight motion, or some accident.

A variety of remedies had been tried in this case;—vesication, stimulating embrocations, warm fomentations, and anodyne liniments had been faithfully applied, with no other effect than to increase the suffering; this was especially the effect of the warm applications. Medicines had been taken internally, with the nature of which, I was unacquainted; their effects, however, were not in the least degree beneficial. Being then, unacquainted with the use of the hemlock, as recommended by Dr. Fothergill, I despaired of success, from the use of the remedies suggested by the authors consulted on the subject. Having recently

witnessed the efficacy of Datura Stramonium in epilepsy, I was induced to try its power in this case. I prescribed a pill containing one third of a grain of the extract twice a day. The patient being very feeble, I judged it prudent to begin with this small dose. It produced decided effects on the system; causing nausea, vertigo and partial vision. Scarcely believing that so small a quantity of any substance could affect the system, she was induced to try the experiment of taking two pills. It proved very satisfactory; operating violently as an emetic and cathartic. She had taken but a few pills, before an evident abatement of the pain was discoverable; indeed but one severe paroxysm occurred after she commenced the use of the Stramonium. She persevered in taking the medicine about three weeks, when every vestige of the original complaint was eradicated. About five years have now elapsed since the cure, and not the slightest symptom of neuralgia has ever recurred. I have rarely witnessed such rapid and astonishing effects from the use of any medicine in any disease. Other remedies had been repeatedly tried, but their powers were inadequate even to palliate the distress.

Another case occurred in a young lady, aged 23 years, of a plethoric habit and phlegmatic temperament. She had been afflicted with violent pain in the side of the face about three months. It commenced in the angle of the lower jaw, and spread to the gums, cheek, and temple. No de-

fective teeth were discoverable, which could give origin to the disease. A slight swelling of the gum was perceptible, but this was neither tender, nor painful. The pain was sudden in its access, and violent,—consisting " in successive strokes or shocks quickly repeated." The general aspect of the complaint so much resembled the preceding case, though less severe, and of short continuance, that I did not hesitate to pronounce it to be of the same nature, and prescribed accordingly. Half a grain of the extract of Stramonium was given twice a day, which proved as large a dose as the system could bear. The violence of the pain soon began to abate, and after she had persisted in its use four weeks, no traces of the original affection remained. Two years after this period, no symptoms of the disease had ever recurred; since which time, I have not seen the patient. Though this case was less severe than the succeeding, yet such was the resemblance in its prominent features, that a common observer might readily discover their affinity. The successful result of the same practice tends to establish their relation.

The third case, in which I had an opportunity of witnessing the efficacy of Stramonium, was a young lady, who had been affected with neuralgia of the face, about eleven months. She had taken the advice of several eminent physicians, from whose prescriptions she had occasionally found some slight relief. Large doses of opium had been taken during the violence of the paroxysms,

but with little benefit. Greater relief had been gained from the use of oleum animale, than from any other medicine. Whether she had ever taken the conium maculatum, as recommended by Dr. Fothergill, and lately found efficient by Dr. Jackson, I am not able to determine. All the remedies heretofore employed, had been productive of but inconsiderable effects, as it respected the removal of the disease. She was now advised a trial of the Stramonium. Having none of the genuine extract, the pulverized seeds were given. The usual effects on the general system were soon felt, and after the continuance of the medicine a few days, an abatement of the disease was experienced. She continued the use of Stramonium with increased advantage; and in three weeks, the violence of the complaint had entirely subsided. At this period I saw her, when she expressed the greatest satisfaction in the use of the medicine, observing, that she should think herself happy in the relief already obtained, if no further effects were experienced. I did not see this patient afterwards, nor have I heard the result;—I hope, however, that a longer use of the Stramonium may have effected a perfect cure. I might add another case that occurred a few months since, in which the extract of Stramonium produced the most beneficial effects. This case had been of but few weeks standing, yet several striking marks of neuralgia of the face existed. The usual remedies for painful affections of the head, had been re-

sorted to with little or no good effect. The extract of Stramonium was prescribed in doses of half a grain twice a day. This quantity affected the system powerfully, and after two or three days, a single dose was taken at bed-time. The pain gradually subsided, and in ten days, no traces of disease remained. A short time since, slight symptoms of the disease recurred, which yielded to a few doses of the Stramonium.

That Stramonium will cure every case of tic douloureux, I am far from asserting or believing.—That some cases of this deplorable malady have been relieved by it, I trust, has been made evident. If only one cure of a disease, in which the suffering is such, as neither words can describe nor the imagination easily conceive, has been effected by Stramonium, its value in this case, ought to be known and acknowledged.

AN INQUIRY

INTO

THE EFFECTS OF

VEGETABLE ACIDS,

IN COUNTERACTING NARCOTICS.

COMMUNICATED BY

GEORGE B. PURDY, M. D.

Corresponding Member of the Society.

Read the 3d of December, 1816.

The opinion respecting the efficacy of lime-juice, vinegar, and the vegetable acids in general, in counteracting the pernicious effects of narcotics, most probably arose among that people who cultivate opium (the narcotic most early and generally used,) for the purposes of traffic, and also generally employ it as a species of luxury. In what manner the fact was first ascertained is uncertain.

That these acids are taken by them to counteract the narcotic power of opium, we are assured by Mr. Grose, who informs us that many of the la-

bouring people at Surat, and especially the porters, take large quantities of opium to enable them to sustain labour, and carry heavy burdens; while the opulent make use of it for the pleasing delirium it occasions, for venereal purposes, &c. For the last effect they usually take it in milk; but when they wish to check, or put an end to its operation, they swallow a spoonful or two of lime-juice, or any similar acid.*

But the experiments of Derosne, afford us more satisfactory proofs respecting the efficacy of these acids. He obtained, separate from the other parts of opium, that peculiar substance which is supposed to give to opium its narcotic power, and hence called the Narcotic Principle.

"This highly possesses the properties of opium; Derosne tried it upon several dogs, and found it more powerful than opium. Its bad effects were counteracted by causing the animal to swallow vinegar. This substance is known to be of equal service in counteracting the effects of opium. Derosne supposes that the efficacy of vinegar may be owing to the readiness with which it dissolves the narcotic principle."†

Derosne gives us, as a result of his experiments the very interesting fact, that vinegar counteracts the narcotic power of opium: but to suppose that it does so, by merely holding its narcotic principle in chemical solution, is certainly very improbable:

* Extract from the first American Encyclopedia—Article, opium.

† Extract from Thomson's chemistry on Narcotic Principle.

for the mere chemical solution of any other substance does not diminish its active power, except so far as it is thereby diluted.

We can come at a better, and more reasonable explanation of the manner in which vinegar, or any other vegetable acid operates in counteracting narcotics, by the help of a theory first suggested by Girtanner. He supposes that most substances taken into the stomach, either abstract oxygen, or afford it to the system; and that narcotics, when administered, produce their effects by depriving the system of oxygen;—on the other hand, the operation of acids depends on the superabundance of the oxygen which they impart to the system. These are his words:—"I have arranged, in the third class the positive stimuli,—that is to say, those substances which have a greater degree of affinity to the oxygen than the fibre has. These substances coming in contact with the fibre, combine with the oxygen it contains, deprive it of its irritability, and leave it in a state of exhaustion. There is a great number of these substances. The most known are alcohol, sulphuric ether, opium, and other narcotics;—oil of lauro-cerasus and oils in general, grease, sugar. All these substances are combustible,—that is to say, they have a greater affinity to oxygen; and it is by this property that they deprive the organized fibre of its irritability, by combining with the oxygen it contains.

"The second class comprehends the negative stimuli, or substances which have less affinity to

the oxygen than the fibre has. Some of the most terrible poisons we know of, must be ranked under this class. The oxygen, which combines with the organized fibre when it comes in contact with these poisons, renders it so extremely irritable, that the weakest stimulus is capable of producing death. Oxygenated marine acid is for this reason so fatal a poison to all organized bodies It destroys them by surcharging them with irritability,—that is, by hyperoxygenating them, and becomes marine acid by this operation."

Upon the same principle, he says, all metallic oxydes and salts produce their poisonous and other effects; and, as he expresses it, they hyperoxygenate the organized fibre, with which they come in contact.—The sensation of thirst, according to him, is occasioned by a deficiency of oxygen; water and the vegetable acids allay it by restoring that principle to the system, in consequence of being decomposed in the stomach. "Thus," he adds, "vegetable acids are the best remedies against the effects of narcotic poisons: for by their decomposition they restore to the fibre the oxygen which the poisons had deprived it of. Vinegar taken in large doses, cures the state of exhaustion produced by a strong dose of opium, and prevents death, which would otherwise ensue."

In support of the idea, that oxygen is the source of irritability in muscles, I quote a part of the experiments of professor Creve, of Mainx, on galvanism. Speaking of the length of time that the

muscles of a frog retained their irritability in the different gasses, he says: " In a receiver with nitrous gas, the muscles of a frog remained motionless, though affected with spasm, and in an hour and a half were perfectly pale and inexcitable. In hydrogen gas they were convulsed. In carbonic acid gas they were at first convulsed, but by exposure to it, gradually lost their irritability; which again gradually returned on exposure to the atmosphere. In oxygen gas the leg of a frog retained its irritability for 106 hours, though the other in carbonic gas was exhausted in four.*

The vegetable acids are generally recommended as antidotes against the effects of vegetable poisons, apparently without any fixed principles, or definite ideas concerning their mode of operation; for, by some, volatile alkali, mucilaginous and oily substances are at the same time advised. The volatiles may be of service to keep up the excitement of the system; but what effect the mucilages and oils can have, either in shielding or defending the stomach and its nerves against the narcotic principle of opium, and other vegetable poisons, is certainly without the bounds of common capacities to explain.

Notwithstanding the custom of those who raise and make daily use of large quantities of opium, and the experiments of modern and more enlightened ages, tend to prove the efficacy of vege-

* Taken from the 5th vol. of the Annals of Medicine.

table acids as antidotes to narcotics; yet, it may be said, that this subject wants more and better proof; and that Girtanner's neglected theory, even though it were true, still remains a supposition, and requires that actual demonstration which the science of chemistry can only afford.—I also, at first doubted its correctness, and made the following experiments to ascertain its practical application. They were made upon myself in preference to brutes; since it is said by some, that precisely the same results from experiments on them, will not occur in the human system.

Experiment I.—At 10 o'clock, A. M. pulse 70 in a minute—took twenty drops of fresh prepared laudanum. At half after ten, pulse 80, harder and fuller. At quarter after eleven; pulse 75, and softer. At 11, pulse 70, and softer. At half after eleven, pulse 65. At 12, pulse 65, small and still softer—felt quite drowsy and heavy-eyed. At half after twelve, pulse about the same, with a slow beat. Dined very lightly at 1, P. M. At half after one, a person who knew nothing of my experiment, observed that my countenance was much paler than usual; and that my eyes appeared very dull and heavy. At 2 o'clock, P. M. quite languid and drowsy; pulse 65, and weak. At half after two, being quite sleepy, with a sense of heaviness and weight across my eyelids; pulse 65, and weak,—I took two small table-spoonfuls of good vinegar. At 3, P. M. pulse 70, and increasing in strength. My drowsiness and heavy sensation across my eyes

have nearly left me, and it is observed by the person before mentioned that my countenance has recovered its usual colour. It was the object of this experiment merely to get the effect which a certain dose of laudanum would have upon my system. Although it may be imagined that the dose (twenty drops) was hardly sufficient for the purpose intended, yet a person who lives sparingly, eats but little animal food, and very seldom uses any fermented or spirituous liquors, will be much more affected by the same dose of laudanum or opium, than one who is in the habit of partaking freely of meat and stimulating drinks. In the latter part of this experiment, the transition from dulness, heaviness, and languor to a state nearly equal to that of complete recovery, by only two small table-spoonfuls of vinegar, in the short space of half an hour, it must be confessed, gave much confidence in its efficacy.

Experiment II.—At half past 9 o'clock, A. M. pulse 70—took twenty-five drops of laudanum, in two table-spoonfuls of vinegar. At 10 o'clock, no alteration in pulse; at half past ten, none. At half past eleven, pulse appears to be rather slower. At 12, feeling a little heaviness across my eyes, took a table-spoonful of vinegar. At half after twelve, this heaviness is gone. Dined lightly at 1, P. M. At 5 o'clock, P. M. have felt no more effects of opium whatever.

Experiment III.—Eight days after the last experiment, at half after 9, A. M. pulse 70, took forty

drops of laudanum, in four table-spoonfuls of lime-juice. At 3, P. M. have experienced not the least effect of the laudanum.

It was the object in these two last experiments, to give the acids a fair trial, and there is reason to believe, that, if the third spoonful of vinegar had been taken with the other two, in the second experiment, not the least effect of laudanum would have been perceived. The third experiment requires little or no comment. I waited the above number of days, to avoid any objection that might be raised against the power of habit, in diminishing the effects of laudanum. After these facts, can it be denied by any impartial person, that these acids counteract the narcotic principle of opium? To approximate to the manner in which the vegetable acid becomes an antidote to the narcotic, I made the following experiments.

Experiment IV.—One hundred grains of pulverized opium were put into three ounces of distilled vinegar, specific gravity 1.006. This stood five days, and was then filtered through paper. I then took 60 grs. of the solution of carbonate of potash in water, specific gravity 1.203, and 290 grs. of distilled vinegar; and after saturating the solution of carbonate of potash with the vinegar, there were 24 grs. of the vinegar left; therefore, 266 grs. of vinegar were employed in saturating 60 grs. of the solution of carbonate of potash.

Again, I took 60 grs. of the solution of carbonate of potash in water, and 310 grs. of the solu-

tion of opium in vinegar, and after saturating the potash, there were 15 grs. of the latter solution left. Therefore, 295 grs. of the solution were employed in saturating the 60 grs. of the solution of carbonate of potash. Hence we find, that it requires 29 grs. more of the solution of opium in vinegar to saturate 60 grs. of the solution of carbonate of potash, than it does of the pure vinegar.

This experiment was repeated with different proportions both of the pure vinegar, and of the solution; and the difference in the results was only about half a grain.

Experiment V.—Three hundred grains of the solution of opium in vinegar, were gently evaporated to dryness, and there remained 6 grs. of opium.—On subtracting these 6 grs. from the 29 grs. the difference between the two saturations, we have 23 grs. for the actual difference.

Thus, by evaporating 300 grs. of the solution of opium in vinegar, 6 grs. of dry opium were found, and 295 grs. of the solution,—or rather after subtracting the 6 grs. of opium, 289 grs. were required for saturating the 60 grs. of solution of carbonate of potash; hence, 289 grs. have lost rather more than 23 grs. of their acid.

Experiment VI.—I prepared a solution of opium in distilled vinegar, specific gravity 1.013. seventy grains of the pulverized opium to two ounces of the vinegar. I then saturated 60 grs. of the same solution of carbonate of potash, with vinegar, specific gravity 1.013. and saturated the same quan-

tity of the solution of carbonate of potash with the solution of opium in vinegar last made; and the difference was found to be 86 grs. Upon repeating the experiment, I made the difference several grains more. Not satisfied with this, I was about to perform it the third time; but unfortunately some particular circumstances prevented me from so doing.

By evaporating what remained of this last solution, (148 grs.) there remained 5 grs. of opium. Therefore, 300 grs. of the solution contained rather more than 10 grs. of opium.

If any dependence can be placed upon this experiment, it appears, that when equal quantities of the two acid solutions of opium are saturated with the solution of carbonate of potash, the solution of opium composed of the stronger acid, loses much the most; but the reason of this does not appear very evident.

From these experiments we are almost ready to conclude, that it is oxygen which the acid loses by the presence of opium; and that it is this deprivation which produces the difference in saturating the pure vinegar, and the solutions of opium. To place this matter beyond a doubt, I resolved to expose opium to oxymuriatic acid gas; when, if it has such an affinity for oxygen as to attract it from the vinegar, and if, according to Girtanner, it can attract it also from the organized fibre; it must certainly deprive this gas of it, and thereby be altered in its properties.

Experiment VII.—I filled a glass vessel, with a ground stopper, capable of containing about 14 oz. of fluid, with oxymuriatic acid gas, and then put into it 40 grs. of pulverized opium. The opium, in a short time, became of much lighter colour; and upon taking it out, it had lost the peculiar smell and taste of opium.

Experiment VIII.—A vessel of the same size was filled with oxymuriatic acid gas, and an ounce and a half of laudanum was put into it; upon applying the ground stopper and turning the vessel up, so as to let the laudanum cover the stopper, atmospheric air was seen to enter through the fluid, which proved a diminution of the volume of the gas in the vessel by absorption. The laudanum soon became of a yellowish colour, and there was a copious yellow precipitate.

Experiment IX.—At 10 o'clock, A. M. pulse 75,* took twenty-five drops of the laudanum exposed to chlorine gas, and experienced no effect whatever from the dose. Upon taking this dose I perceived an acid taste,† and concluding from this, that the laudanum had absorbed some muriatic acid also, and fearing lest this might have some effect in changing the properties of the laudanum, I relinquished any further experiments upon it.

* This frequency of pulse must have been owing to the disagreeable warm, foggy, and damp weather.

† This was not perceived until it was too late to expose the laudanum to chlorine gas, in such a manner that it would not absorb the muriatic acid.

Experiment X.—At half past 2 o'clock, P. M. on the same day, I took a grain of the opium exposed to the chlorine gas. Half after 5, P. M. the opium has not affected me at all.

Experiment XI.—At 9 o'clock, A. M. took 3 grs. of the opium, exposed to chlorine gas. At 4, P. M. have experienced not the least effect of opium. During all my experiments, in taking opium or laudanum, my alvine excretions have been perfectly natural.

Is not this last experiment a pretty good proof, that the opium by exposure to the oxymuriatic acid gas, has absorbed the oxygen and thereby lost its narcotic power;—similar to some other vegetable substances, such as tannin and extractive matter, which by a like exposure also lose their peculiar properties?

May we not now reasonably infer, that the cause of the number of grains being lost, of the vinegar holding opium in solution, in the fourth and sixth experiments, may be ascribed to an absorption of oxygen from the acid by the opium; and that the vegetable acids do counteract the narcotic principle of opium by restoring to the system its lost oxygen?

Experiment XII.—Exposed 80 grs. of Lorillard's chewing paper tobacco to oxymuriatic acid gas, equal in bulk to fourteen fluid ounces. It soon changed to a much lighter colour, and also lost most of the smell and taste of tobacco.

From the results of these experiments, is it unreasonable to expect similar results from the same experiments on the other narcotics; and may we not confidently recommend the vegetable acids, to be administered in all cases, as an effectual antidote, whenever it becomes desirable to counteract an over-dose of any of these powerful medicines?

Although a sufficient quantity of the acids could not be given to suppress the effect of such enormous quantities, as those persons usually take, who wish to free themselves from all their worldly troubles; still by premising an emetic before the action of the narcotic is completely done, we may administer the acids with a reasonable chance of success.

As the secondary effects of alcohol upon the system, are something similar to those of narcotics, which agrees with the opinion of Girtanner, that alcohol deprives the organized fibre of its oxygen; and as it is well known that drunken persons become sober by drinking a glass of vinegar; may we not, with *him*, recommend the vegetable acids to counteract the pernicious effects of an over-dose of ardent spirit?

That this idea may not seem to rest too much upon theory, I subjoin a letter from Dr. Warburton.

New-York Hospital, March 15th, 1816.

SIR,

I have seen but few cases from the improper use of narcotics. In those few, however, the administration of vinegar was generally attended with the best effects. Last fall, a patient of this house, after taking an unusual dose of his medicine, (the tincture of white hellebore,) was shortly seized with pain in the region of the stomach, violent vomiting, spasms and convulsions, which seemed even to affect his lungs;—the respiration was interrupted, laborious and stertorous; his face alternately flushed, pale and livid; his eyes were brilliant and protuberant, or retired and closed within their lids, and a very profuse perspiration covered his forehead and breast.

By volatiles and external stimulation, he was soon enabled to swallow vinegar; and in a few hours, all his distressing symptoms were removed.

In a case of drunkenness, I have seen the like happy result from the use of vinegar. The patient was taken up in the street, senseless and motionless, with coma and stertorous breathing; the iris was contracted to a mere ring, and insensible to light. He could not be roused by the most powerful external means. We succeeded in getting vinegar into his stomach by small doses;—In a few hours (not exceeding three) he was walking about the ward, and the next morning was discharged cured.

I am, Sir, respectfully, &c.

J. W. WARBURTON.

AN ESSAY

ON

THE EPIDEMIC,

WHICH PREVAILED

IN THE NORTHERN DIVISION OF THE ARMY

OF THE UNITED STATES,

DURING THE AUTUMN OF 1812; AND WINTER OF 1812—13.

Addressed to Wm. M. Ross, M. D. *Hospital Surgeon of the United States Army, &c. &c.*

COMMUNICATED BY

J. B. WHITRIDGE, M. D.

Corresponding Member of the Society.

Read the 3d of December, 1816.

Sackett's Harbour, April 20th, 1815.

Doctor Ross,

Sir,—Permit me to offer to you, a few observations on the Epidemic of 1812—13, which prevailed throughout the northern division of the army, (stationed at Plattsburgh, Burlington, Greenbush, and Buffalo,) and throughout an important section of the Union, but *particularly* as it appeared in Burlington, Vermont.

I cannot say any thing of this Epidemic from any actual observation or experience, prior to December 1812; at which time I was stationed at

Burlington, where, during the autumn and winter of 1812—13, prevailed in its most violent form, that Epidemic, which pervaded the army, and a very considerable portion of our country which proved so destructive to the soldiers, and so deadly to the citizens; and which excited so much controversy, and speculation among physicians.

Many of the causes of this public calamity, are, perhaps, enveloped in darkness; some of them, however, are explicable upon the principles of physiology and philosophy.

Without entering into a minute and elaborate disquisition, on this very interesting and important subject, I shall leave it to your more mature judgment and deliberation, after noticing it in the following order:

I. I shall give a brief description of the disease, so far as it came under my observation.

II. I shall then cursorily mention its most probable causes.

III. Make some remarks on the mode of treatment, by different practitioners. And,

IV. What in my humble opinion, I conceive to be the best.

In order to be useful, it is necessary not only to know and describe the opinions of others, but to relate our own observations and particular experience.

It would here be proper to observe, that, previous to the appearance of the Epidemic among the soldiers of the army, who were first seized, and

among whom it raged with more violence than among the citizens, our army was at that time in its infant state; it was almost wholly composed of raw recruits; unaccustomed to the fatigues and hardships of a camp life. Their accommodations generally very bad; and that part which was on the northern frontier in October and November preceding the Epidemic, was very much exposed to the inclemency of the weather, on their march from Plattsburgh to Champlain, and also during their encampment upon the borders of Canada.

After remaining there some time, they broke up their encampment, marched southward, and went into winter quarters at Plattsburgh and Burlington; which terminated the campaign of 1812.

It would here also be proper to observe, that previous to the appearance of the Epidemic among the troops, a diarrhœa prevailed among them; they were afterwards attacked with the rubeola. This contagious disease spread generally throughout the northern division of the army, which, together with the local situation of the troops, the badness of their accommodations, (which were tents,) the scantiness of their clothing, and the coldness and dampness of the weather, produced a very irritable state of the lungs, which laid the foundation for the subsequent Epidemic.

I. The first stage of this disease, like most other febrile diseases, was generally ushered in by cold chills, preceded and accompanied by languor and debility. These symptoms were soon followed by

heat of the body, above the healthy standard; flushed countenance, and, in some instances, eyes suffused with blood. Severe lancinating pains were felt through the thorax, and sometimes in the head; accompanied by painful and laborious respiration, with a sense of weight and suffocation. The anxiety was great, and the skin dry;—where the disease proved mortal, the latter circumstance was remarkable, in so much, that perspiration could not be induced by any means whatever. These symptoms were not unfrequently accompanied by diarrhœa. Severe cough attended, and an expectoration of a yellow or white mucus, which was at first inconsiderable, but afterwards more copious, and generally mixed with blood. The tongue was at first dry, and covered with a white coat, which, in most instances as the disease advanced, soon changed to a dark brown, or black colour, especially in those cases that terminated fatally. The pulse was sometimes small, contracted, and hard; at other times, full, hard, and rebounding. In some instances, the pulse was said to have been soft and small; but I saw no cases, where there was not more or less hardness of it at the commencement of the disease. It may be observed, however, that I did not have an opportunity of witnessing the complaint when it first made its appearance, and when it raged most: perhaps I did not see the worst cases, particularly those that occurred in the fore-part of December.

The disease appeared to me to be in a great measure local, notwithstanding the inordinate action of the heart and arteries, which produced an excessive action of the blood-vessels of the lungs, and, consequently, of the respiratory organs;—the extremities were not unfrequently cold.

According to the statement of Drs. Mann, Lovell, and others, the complaint, in many instances, ran its course rapidly, and terminated suddenly; frequently in twenty-four hours, but generally lasted from four to six days, and sometimes longer. One very severe case fell under my care, in which the fever continued twelve days, and had a favourable termination.

In general, it appeared to possess a disposition to run rapidly into a state of indirect debility; this circumstance gave rise to the opinion among physicians, that it was a disease of debility; but which, in my opinion, only proves that it was a highly inflammatory disease, and of course required the most active antiphlogistic remedies at its commencement to obviate the inflammatory diathesis, and consequently, to prevent the subsequent debility. The constitution unquestionably suffers more from the inordinate action of the heart and arteries, where an inflammatory disease is suffered to progress without interruption, than from the sudden abstraction of stimuli, by the most powerful antiphlogistic means. The strength of the system is wasted; or, what is called by Brown *excitability*, and by Darwin *sensorial power*, becomes so far

exhausted, as to induce that state of the system which is called by the former *indirect debility*; and which is more difficult of cure, than direct debility,* or what Rush calls *debility from abstraction.*

II. When a disease is regularly described, it is requisite to mention, or at least to inquire into, the remote, (viz. predisposing and exciting,) and proximate causes.

REMOTE CAUSES.

Of one of the remote causes of this disease, I believe very little is known. I confess, I am ignorant of it, and like others in similar difficulties, refer it to an unknown source, viz. *some peculiarity in the constitution of the atmosphere.*† To this, may be added with much reason and plausibility, previous diseases, and also dejection of spirits, occasioned by disappointed hope, in consequence of the unfavourable termination of the campaign.‡ "Hippocrates, who has noted with accuracy the peculiarities of various years, together with the prevalent species of disease, attributes the variation of the maladies, to a divine something, τὸθεῖον; which some of his commentators consider as signifying merely the atmosphere at large; but others, among whom is Galen, suppose

* Vide Elementa Medicinæ, Sec. XXII. XXXIII. XXXIV. and XLV.

† See a brief History of Epidemical and Pestilential Diseases, by Noah Webster, 1800.

‡ See Rush's account of the influence of the military and political events of the American Revolution, upon the human body. Med. Inq. and Obser. Vol. 1st, page 133.—Also, Vol. 3d, p. 4th and 49th, fourth edit.

that he intended to express a latent and inscrutable cause in the air, which produced these surprising effects.* Galen observes, in his commentary upon this point, "non quæcunque causas habent abditas et obsuras, *divina* vocamus; sed ubi admirabilia videntur duntaxat." The modern Hippocrates, Sydenham, states that he had observed with the utmost diligence, the different peculiarities of different years, as to the obvious changes and conditions of the atmosphere, with a view to ascertain the causes of the great varieties of Epidemic disorders; but that he had not made the smallest approximation to such a discovery; on the contrary, that he had remarked, that seasons of the most decided similarity, in respect to the manifest qualities of the air, were infested by diseases altogether dissimilar, and *vice versa*. "For the constitutions of different years are various;" he says, "yet they do not depend upon the degree of heat or cold, of dryness or humidity, which accompanies them; but probably originate from some occult and inexplicable changes, wrought in the bowels of the earth itself, by which the atmosphere is contaminated with certain effluvia, which predispose the bodies of men to one or other form of disease. This predisposition continues during the prevalence of the same constitution, which, in

* See Hippoc. lib. i. de Prognost.—Galen in Com.—Also, Sennert. lib. iv. cap. ii. de Causis Pestilentiæ.

an uncertain period of time, is superseded by another."*

From a consideration of the same facts, several writers have attempted to account for these supposed occult changes in the qualities of the atmosphere, which induce epidemic diseases, by tracing them to some of the obvious phenomena of nature, by which such changes may be supposed to be effected."†

A cold and damp atmosphere.—Cold, however, applied to the body, but particularly the cold and damp atmosphere of the newly plastered barracks, into which the soldiers were crowded in great numbers, at Burlington.

Some *chemical combination* of the vital principle of the air with the lime of the newly plastered barracks, thereby rendering it unfit for respiration.

This cause was very much increased by the numbers crowded‡ into each room, for want of a sufficiency of barracks, which were not properly ventilated.§

Bad police, consequently foul camp.¶

* Syd. sect. i. c. 2. De Morbis Epidem.—See also, Van Swieten Com. ad Aph. 1408.

† Dr. Rees's New Cyclopædia. Article, Epidemic. American Edition.

‡ Dr. Rush's Observ. upon the Diseases of Military Hospitals, vol. 1, p. 148, of the Med. Inq. and Obs.—Also, Econom. Observ. on Military Hospitals, and on the Diseases incident to an Army. By James Tilton, M. D. Phys. and Surg. Gen. of the Army of the U. S.

§ Sir John Pringle's Observ. on the Diseases of the (British) Army.

¶ Vide John Hunter on the Diseases of the Army in Jamaica, page 285.—Also Sir John Pringle.

Intemperance in eating and drinking, but particularly in the use of whiskey.

Irregularities, which produce an unequal excitement of the system ;—*sanguine temperament*—"*Sudden transitions from heat to cold, and vice versa.*"

Diet,—principally of animal food, to which the troops were unaccustomed.

Often deficient and depraved aliment.—This was a fruitful source of disease ; especially among raw recruits, and might have operated as a predisposing cause of this epidemic. It is not to be understood, however, that the rations, as furnished by government, were deficient in quantity, although (through the neglect of the contractors,) they were sometimes *unsound:* on the contrary, to an old soldier, or any one who knew how to make the best of his ration, it was amply sufficient,* but it may be considered coarse living and hard fare for the militia and recruits, who have recently left their families and their friends, and the domestic comforts of their homes ; where they had been accustomed not only to meats, but to a plentiful use of milk and vegetables, and most of them to tea and coffee ; which are almost invariably prepared,

* "A soldier's ration, as established by Government, consists of one pound and one quarter of beef, or three quarters of a pound of salted pork, eighteen ounces of bread or flour, one gill of rum, brandy, or whiskey ; and at the rate of two quarts of salt, four quarts of vinegar, four pounds of soap, and one pound and a half of candles, to every hundred rations."

The ration of a British soldier as established by the British Government or by commutation, is less substantial, but more conducive to health—It consists of less meat, but more vegetable food, such as potatoes, peas, &c. and once or twice a week a quantity of rice and butter.

in this country, by women. Such were ignorant of dressing their own food for themselves; and until some system was formed, wasted one half their meat by broiling it in the ashes:—To such who had left their own fire-sides and feather beds, for the tented fields, or cold barracks of the frozen regions of the north, the situation was peculiarly hard and distressing. Although they were for a time, buoyed up by patriotism and the love of fame, which, together with the passing events of the war, and the anticipation of future successes, operated as a stimulus to the mind; yet their situation not unfrequently produced the *nostalgia*, or *home-sickness*, of Dr. Cullen.

Impure Water.—This was also a source of much mischief, not only at Burlington, but at almost all the different posts along the frontier; and, in combination with other causes, produced diarrhœa, or dysentery, throughout the whole northern division of the army.

The springs are generally impregnated with lime; sometimes in combination with some of the acids, forming neutral salts; but generally with a predominancy of alkali or alkaline earth. The water of this place† (Sackett's Harbour) issues from a bed of limestone, and holds in solution the muriate of lime, which is very injurious to the health of strangers; particularly those who come from

† There are no wells here. A number of persons have been employed by Government to dig a well in the Smith Cantonment, they penetrated upwards of thirty feet, into a solid rock, obtained little or no water, and abandoned the object.

the sea board, (where the waters usually contain an excess of acid,) or from a granite country, or almost any place where limestone does not abound. Lake water is preferable to spring or well water, when taken up at a distance from the shore; but it was usually taken up at the margin of the lake, where it received all the wash and filth of the camp, and consequently, was extremely pernicious to the health of the troops.

Excessive watching and fatigue,—after which, *great indolence*, or a want of that exercise which is necessary "to give tone to the muscular fibres of the body, and to promote the general circulation of the fluids," and thereby to ward off disease, by preventing sudden impressions and slight changes in the system. Besides the debility of constitution and consequent predisposition to disease, induced by the above mentioned causes, the exhaustion produced by excessive corporeal exertions, loss of sleep, and the depressing passions, probably contributed in no small degree, to predispose the body to, or excite this disease.

PROXIMATE CAUSE.

Excessive local action, producing an inflammation of the membranes and substance of the lungs, and consequent increased secretion.

Of the *diagnosis* and *prognosis* of this disease, I shall say nothing; but pass to the third general division.

III. To this disease various names have been given by different practitioners, and their treatment has been as various as the names they have given it.

Dr. Yates, in his first publication, hesitated to give it a name; but in a subsequent publication observes: "As diseases are generally named from some prominent symptom that characterizes them, I have no hesitation to entitle this, a bilious fever; and from its being Epidemic, the *Bilious Epidemic Fever.*"*

Dr. Yates was violently opposed to bleeding, and trusted wholly to emetics and cathartics in the cure of this formidable disease. He invariably commenced with an emetic, which he soon followed by a cathartic, and kept up the constant repetition of emetics and cathartics, until the patient either got better or died. This gentleman observes, in some communication on this subject, (if my recollection serves me,) that he thinks the time not far distant, when the whole practice of physic will be reduced simply to the administration of emetics and cathartics, in the cure of all diseases.†

This complaint was denominated by Dr. Stearns,—"*Typhoid Peripneumonia*, or *Pneumonia Typhoides.*"‡ He likewise trusted principally to emetics and cathartics; but gave also diaphoretics and demulcents, combined with opium; and oc-

* Med. Repos. New Series, vol. 1, page 252.

† The paper in which this idea is advanced, I have not now before me.

‡ Medical Repository, vol. 1, page 264. New Series.

casionally used epispastics, after having failed in attempting to relieve the violent pains of the thorax, and difficult respiration, by spirituous fomentations. Both the above named gentlemen considered this a *new disease.*

Dr. Hosack and Dr. Low* adopt the nosological arrangement of Dr. Cullen, and rank it under the genus "*Pneumonia;*" species second, "*Peripneumoniæ, Idiopathicæ complicatæ febre;*" and of the variety, "*Peripneumonia Typhoides. S.*"

The former considers it a species of the spotted fever, or rather a modification of that disease, complicated with *local inflammation*, as will appear by the following extract:—"The causes of this disease," says he, "are no less compounded than the disease itself. The local inflammatory affections are probably occasioned by the *sensible* changes of the atmosphere, while the typhoid character of the disease, is derived from *Epidemic constitution* of the air, the same which has given rise to the typhus petechialis or spotted fever, which has prevailed for some time past in our northern and eastern states, and which is, doubtless, the same disease as that now prevailing in Albany; with the exception, that the present Epidemic is complicated with the symptoms of local inflammation of the chest, brain, throat, &c. the effect of the present cold season of the year. With this view of the *mixed* nature of the disease, and of the combined causes which have produced it, we are

* Vide Amer. Med. and Phil. Register, vol. 4, p. 20.

prepared to expect the various and opposite opinions and modes of practice, which have been adopted by different physicians."*

Dr. John Bard describes a very fatal form of Epidemic disease, bearing some resemblance to the present, under the name of *Malignant Pleurisy*, which prevailed in the town of Huntington on Long-Island, in the year 1749.†

Dr. Mott has given us a minute and learned memoir of a similar Epidemic, which prevailed at *Newton*, Long-Island, in the spring of 1812, which he has denominated a *Malignant Epidemic Peripneumony*.‡

Dr. Williamson has given us some account of a disease which prevailed in North-Carolina; and which is endemical in the southern states, under the name of *Malignant Pleurisy*. He says:— "When it fell upon the breast, as the pain in many cases was severe, the impropriety of the name is not remarkable; but it falls upon the head nearly as often as it falls upon the breast; and in that region is exceedingly painful. Then too it is called, however improperly, a *Pleurisy of the head*."

He considers it a similar disease to the one under consideration, though nearly allied to the pe-

* See Med. and Phil. Register, vol. 3, p. 448.

† Med. and Phil. Register, vol. 1.

‡ Med. and Phil. Register, vol. 3, p. 165, et seq.

techial or spotted fever of New-England; and endeavours to trace it to the same cause.*

Dr. Pomeroy the medical professor at Burlington College, and many others in different parts of the country, distinguished this disease by the various names of *Epidemic*, *Typhus Epidemic*, and sometimes, *Typhus Fever;* but more frequently *Spotted Fever.* Many physicians are much in the habit of prescribing for the names, rather than the symptoms of diseases, which may, in some measure, account for the indiscriminate and improper use of stimulants in the disease now before us. It was treated by this class of physicians at Burlington, and through a considerable portion of the country where it prevailed, altogether by stimulants, and generally those of the most active kind. Wine, brandy, and opium, were the grand articles. These were given in any quantity; even from the commencement of the disease. In many instances, however, they premised an emetic, which if it did not induce delirium, this was soon brought on by the brandy and opium, which succeeded it in very large quantities; and which usually terminated the short, though miserable existence of the unfortunate patient.

I am by no means tenacious as to the name of this disease, because in a practical point of view, I consider it a matter of very little importance, what name a disease bears, or whether it has *any,*

* Register, vol. 3, p. 454.

provided it is well understood;—if it is not, the name can do very little towards enabling us to comprehend its nature.

"Much mischief has been done by nosological arrangements of diseases."*—"The truth is, that systematics have misled each other from age to age, without deigning to look at the phenomena of nature, as these arose before them."†

In giving a description of a disease, in order to prevent confusion, it becomes necessary to designate it by some name or other. I shall, therefore, adopt the name of that disease, to the symptoms of which it bears the strongest resemblance.

It appeared to me to be more nearly allied to the *Pneumonia* of authors, than to any other complaint; and particularly to that species of it, denominated, by Dr. Cullen, *Peripneumoniæ idiopathicæ simplices;* and of the variety *Peripneumoniæ notha;*—but with symptoms *of a more aggravated nature.*‡ It seized more violently, ran its course more rapidly, and terminated in one of the five following forms; either by resolution, adhesion, effusion, suppuration or gangrene. The inflammation in those who recovered, generally terminated by resolution, and sometimes by effusion or suppuration. Those cases which ended fatally on the first, second, or third day of the disease,

* Rush's Med. Inq. and Obs. vol. 3, p. 20.

† Brown's Elements, Sec. cccIxvii. (t.)

‡ Probably owing to local circumstances.

usually terminated by effusion, which perhaps was the most common; and next to that, suppuration, in those cases which terminated after the third day; and sometimes by a commixture of both. The other termination now and then occurred, though less frequently.

IV. The mode of treatment whcih I found most successful at Burlington, and which I practised in the 9th Regiment of U. S. Infantry, was the following:

If I saw a patient in the incipient stage of the disease, (which, however, was seldom the case,) I usually prescribed pediluvium, and some mild sudorific, which was at the same time a diluent, such as weak balm, sage, or catmint tea. In the hot stage which soon followed, I invariably commenced by bleeding, and repeated the operation according to the force and frequency of the pulse, the state of the tongue, and other symptoms. In the majority of cases, I bled copiously, say, from sixteen to thirty-two ounces. In one or two instances, particularly the case aforementioned, I drew thirty-six ounces at a bleeding, two days in succession;—sixteen in the evening of one of those days, and from thirty-two to thirty-six, at two bleedings the next day; and about sixteen each day, for two days following; and the same quantity at two subsequent bleedings;—making in all, nine bleedings.

Dr. Rush says: "Blood-letting should always be copious where there is danger from sudden and

great congestion, or inflammation in vital parts."* This was my anchor of hope in all cases ; and it was this particularly, which I depended on more than any one thing.—" By making use of blood-letting in fevers, we are not precluded from the benefits of other evacuating remedies. Some of them are rendered more certain, and more effectual by it ; and there are cases of fever in which the combined, or successive application of them all is barely sufficient to save life.

To rely upon any one evacuating remedy, to the exclusion of the others, is like trusting to a pair of oars in a sea voyage, instead of spreading every sail of a ship."†

In many cases, bleeding was required oftener, but not so copiously as in the one above. I have practised venesection from one to three times a day, with the happiest effect;—taking from twelve to twenty ounces each time, during the first three days of the disease. There were some cases, that would not bear copious bleeding, but required the frequent repetition of that operation. It was those peculiar cases, where there was a small oppressed pulse, which would usually rise on opening a vein.‡ This is called by Dr. Rush, the *synochula* state of fever.§

* Med. Inq. and Obs. Vol. 4, p. 205.

† Med. Inq. and Obs. Vol. 4, p. 195.

‡ Med. Inq. and Obs. Vol. 4, p. 196.—Pringle, p. 160.—Thomas's Practice, p. 37.

§ Med. Inq. and Obs. Vol. 3, p. 26.

Next to blood-letting, I would rank the submur. hydrar. I however, seldom gave it alone and uncombined, but in large doses with jalap, or with equal parts of jalap and aloes, in the form of a pill, sometimes with the addition of 1-4 gr. tart. antim. to 3 gr. of the admixture.

Drastic and particularly mercurial purges were essentially necessary at the commencement of the paroxysm; and were used to the best advantage, immediately after bleeding. When the action was somewhat reduced, milder cathartics answered the purpose, such as the oleum ricini, or some of the neutral salts, as the sulphas and phosphas sodæ. In the more aggravated cases, however, I not only gave mercurial cathartics, but calomel also in small doses, sometimes combined with ipecac. and opium.

Expectorants and sudorifics, were useful auxiliaries; and when there was much coldness of the extremities, semicupium was an important agent towards equalizing the action of the system. Universal hot bath was prejudicial;—tepid bathing was preferable, though not very beneficial. Where severe pains in the thorax, did not readily yield to bleeding, and to the other remedies, epispastics were indispensably necessary.

All fermented and spiritous liquors, and all food directly stimulating to the system, were interdicted until the convalescent stage of the disease. The food consisted principally of decoctions of

barley, rice, and the farinaceous substances in general.* Cold air† was freely admitted into the room. Copious draughts of cold water,‡ and other cold drinks were used, and in short, the whole antiphlogistic regimen rigidly pursued.

This, sir, was my usual routine, from which there was no considerable variation in any case; and for the propriety of which I can only urge the success of the practice.

I cannot accurately state how many cases occurred in the 9th Infantry, but of all those which did occur after I joined the regiment in December, I lost but *one;* and but two or three other deaths took place during the continuance of that regiment at Burlington,—which was until the 24th of March, 1813.

The case above alluded to was not necessarily fatal, but probably as much under the controul of medicine as any other of equal violence. The subject of it, from the dread of the potent remedies, to which he had seen his comrades subjected, and which he himself anticipated, was deterred from making application until the fourth day of the disease. It was then too late—the inflammatory stage had run through—depletion was impracticable. Blisters were applied, and an emetic administered, but without effect—stimulants were unavailing—the extremities were cold—face and

* Fordyce on Fever. Third Dissert. part 1, p. 184.

† Rees's Cyclopedia, article, cold.

‡ Hoffmani Opera, vol. 1, p.499.—Celsus de Medicinæ, lib. iii. cap. 7.—Currie's Med. Rep. vol. 1, chap. xi.

lips had become of a dark purple colour—and the respiration was so difficult, as to amount almost to suffocation, from an inability in the lungs to perform their office. The patient died on the sixth day, after severe suffering, as was usual in such cases. Four hours after death, I examined the body, in the presence of several officers of the Medical Staff. The appearances on dissection were as follows:

A very copious effusion, together with an extensive suppuration of the lungs had taken place; adhesions of the pleura costalis, with the pleura pulmonalis, had also taken place, and large abscesses formed in the right lobe of the lungs, so as almost wholly to destroy its action. I have observed similar appearances in other cases, where I have had an opportunity of examining them. Abscesses were frequently so extensive, as almost wholly to destroy the substance of the lungs. Sometimes one or both lobes would be turgid with blood; the sanguiferous vessels of the lungs being forcibly injected with black blood from the heart.

In some instances, I have noticed one lobe to be wholly, or both partially collapsed, contracted, and shrunk, without air in their cells; which leads to the conclusion that one lobe at least, or a part of both, may cease to act for some time before death.

In the case abovementioned, there was also some affection of the liver. The subject of it was of an intemperate habit, and his disease was ex-

cited by exposure to a cold and damp atmosphere, while in a state of inebriation.

It was an observation of Dr. Mann, which I think worthy of remark, that the intemperate were the first who were attacked, and the first swept off by this destructive malady; and he might have added, that the intemperate would have best borne, and most required extensive depletion.

The appearances on dissection, (aside from the symptoms,) clearly proved, that the disease was highly inflammatory. This I think, must have been obvious to the understanding of every one, possessing the least knowledge of morbid anatomy, who would take the trouble to examine for himself. And yet how astonishing it is, while six or eight valuable soldiers were dying daily at the post of Burlington, that the stimulating practice should have been pursued.

A

CASE OF POISON

BY THE

TINCTURE OF OPIUM.

BY JOSEPH M. SMITH, M. D.
Fellow of the Society.

Read the 4th of March, 1817.

In July, 1815, I was requested to visit, in consultation with Dr. Conger, a case of poison by the tincture of opium. The subject was a female of dissolute character, aged about sixteen years. Being extremely mortified in consequence of a quarrel with a favourite suiter, she resolved to terminate her existence; and for this purpose swallowed upwards of two ounces of laudanum. Dr. Conger first saw her about two hours after the dose was taken. He found her in a state of stupor, but yet capable of being partially roused. She had taken from an apothecary, an antimonial emetic, but without any effect. The Doctor had immediate recourse to the sulphate of zinc, which was administered to the quantity of a drachm; but, owing to the diminished excitability of the stomach, only a little vomiting was excited. The stupor

continued to increase until the time I saw her, which was about forty-five minutes after the sulphate of zinc was given. At this time her insensibility was so great, that no ordinary means could awake her. Respiration was slow and stertorous; pulse nearly natural in fulness and strength, but slower than in health; countenance pallid, and the locomotive muscles perfectly relaxed. It being impracticable to introduce any thing into the stomach, we were compelled to rely on remedies applied externally. Aqua ammonia, inserted into the nostrils, produced no effect, except a slight tremour of the eyelids. Slapping the palms of the hands was resorted to, but this, like the former remedies, was found to be inefficacious. We next directed the back to be exposed, and the sole of a shoe to be applied with severity between the shoulders. A few applications produced the desired effect;—respiration became quickened;—she groaned deeply,—expressive of pain, and the muscular system was thrown into slight convulsive action. A momentary suspension of this treatment, occasioned a relapse into profound coma. We now left her, directing the attendants to continue the remedy at short intervals.

In half an hour we called again. One of the attendants had substituted for the shoe, a small cord, put up in the manner of a cat-o'-nine-tails. A single stripe with this instrument was sufficient, not only to excite acute sensation, but to occasion her to utter remonstrances against the seeming

cruelty of the treatment. The benefit derived from this novel remedy justified its continuance, which was accordingly ordered; and, in addition thereto, we prescribed the internal use of carbonate of ammonia;—the function of deglutition being partially restored.

At the expiration of another half hour, the patient had so far recovered, as to converse and support herself in a sitting posture. These favourable symptoms, however, vanished as soon as the sensation excited by a stroke of the whip ceased; its further use, therefore, was occasionally required, but with less severity. In a short time after, she attempted to walk, but in this exercise she reeled to and fro like a drunkard. She complained of nausea and made efforts to vomit, and in a few minutes after ejected the contents of the stomach. We now ordered the flagellation to be discontinued, and the patient to be kept awake by milder means.

The next morning Dr. Conger found all her symptoms favourable: there was yet a disposition to sleep, but this she could easily controul. She complained of pain in the back, which was considerably inflamed and discoloured. The pain of this part, however, was trifling compared with that which she suffered on the anterior part of the thighs and knees, which were highly inflamed and livid, in consequence of one of the attendants having imprudently, and without orders, applied the scourge with violence to these parts. On the fol-

lowing day the inflammation abated, and afterwards gradually disappeared. In a few days her health was perfectly restored, and she returned with a wanton contempt of shame to her former dissolute habits.

REMARKS.

When circumstances prevent the introduction of medicines into the stomach, it becomes an object of the first importance, to devise some external means which shall be adequate to the removal of the existing disease. The more urgent the case, the more active should be the remedy. In the instance before us, deglutition was completely suspended, and the symptoms were of the most alarming nature. The expedient resorted to, it will be readily acknowledged, is one of the most potent of external applications; and though it has hitherto been chiefly employed to correct moral evil, it is evident, that here its medicinal operation produced the happiest effects.* Its *modus operandi* is deducible from the known power of opium to counteract irritation. In administering this drug, we proportion it to the violence of the existing irritation; and in reasoning on this subject it would seem, that giving a dose of laudanum to a person in health, and immediately after instituting a degree of irritation equal in force to the power of the opium, its

* The use of this remedy was suggested by the recollection of a similar case successfully treated by means of a switch, related by Dr. Valentine Seaman, and published in the Medical Repository, vol. 3, p. 150, Hex. I.

ordinary effects would be averted. Such appears to be the fact; and accordingly we conclude, that when it is impracticable to evacuate the stomach, or convey any thing into it, in cases of poison by opium, the most eligible, because the most prompt and efficacious remedy, is flagellation; this can be so regulated as to counteract any degree of narcotic effect, provided the power of the opium does not transcend the highest degree of external irritation which it is warrantable to produce.

In all cases where the nervous system is deeply affected by narcotics, ammonia is preferable to every other internal stimulating remedy, on account of its sudden and diffusible operation. The power it possesses, of restoring the excitability of the stomach, may be ranked among its most salutary properties. This power is evinced in the case above related, where it is seen, that the contents of the stomach were ejected shortly after the exhibition of the carbonate of ammonia. In the Medical Repository,* cases of poison by opium and stramonium, are recorded by Drs. Akerly and Brown, which prove that potash and soda possess a similar power; hence it appears, that the alkalies are the proper means for restoring the excitability of the stomach after exhaustion by narcotics; but which of them is preferable is, perhaps, a question. From the salutary effects of the ammonia in the above instance, may we not presume that

* Vol. 5, p. 36, Hex. I. Vol. 1, p. 10, New Series.

this alkali is entitled to our greatest confidence, since it is highly probable, that, besides affecting the stomach, it will produce a curative effect on the whole system.

A CASE

OF

AN ARTIFICIAL JOINT

CURED BY FRICTION.

COMMUNICATED BY

JOHN MEEKER, M. D.

Corresponding Member of the Society.

Read the 3d of June, 1817.

Mrs. P—— of Perth Amboy, aged 28 years, of a good constitution, and sanguineous temperament, on the 5th of Nov. 1814, while directing her servants in some domestic work, fell from a chair on which she was standing ;—the tendon of the biceps flexor cubiti muscle of the right arm, was caught by the handle of a bucket, and wounded near its insertion ; the whole weight of the body coming on the fore-arm, fractured the radius about four inches above the carpus. Besides the violence done the biceps flexor cubiti muscle and the radius, the muscles of the fore-arm were found to have suffered violently from the contusion. The arm was dressed lightly in consequence of the bruise, and one splint applied. The swelling

that followed was so considerable, and the pain so acute, that the dressings were removed, and a camphorated lotion used to the arm; the former were not steadily re-applied for three weeks, owing to the pain and inflammation which continued. The biceps muscle gradually regained its former power; and in about six weeks it could contract so as to flex the arm with tolerable ease. The arm was reduced to its natural size and appearance, yet it was imperfect; pronation and supination, without a firm roller, gave pain and a sensation of something loose in the arm.

Two months after the accident, I saw the lady, and, on examination, found that the radius had been fractured, and an artificial joint formed;—the attending physician had not detected the fracture, and consequently could not account for the phenomenon then existing.

She expected soon to visit Philadelphia, and wished to delay any attempt at a radical cure, until she could have the advice of Dr. Physick. I mentioned to her that he would probably introduce a seton through the arm.

Fortunately, the fear of having a seton passed through her arm, caused her to delay making application to him; and at the ball given the 22d of February, in commemoration of the birth of General Washington, she unexpectedly met with an intimate friend in the ball-room, and in the tumultuous joy of the moment, gave him her right hand, contrary to her usual practice since the in-

jury of her arm: the cordial shake which he gave it, produced such excruciating pain, from the friction of the two ends of the bone at the artificial joint, that it reminded her of her mistake, and caused an involuntary scream. The arm remained sore, and in a few days slight lancinating pains were felt in the part, which remained for some time. At the end of three or four weeks, she was astonished to find she had the free and perfect use of the arm, and that the roller was no longer necessary. The bone had firmly and securely united.

The deductions to be drawn from this case, may probably be attended with some practical utility; it will teach us, at least, that an attempt to ameliorate the condition of our patient, should not be given up as a hopeless effort; for, by rubbing the two fractured ends together, we may save him from the horrors of the scalpel and the saw, and perhaps from death. The operation which has been most frequently performed for the relief of this deformity, was not unknown to the ancients. White is the first among the moderns who proposed it; it was performed with success, under his inspection, on a boy nine years old, for a fractured humerus; but since, it has rarely succeeded. It is performed by cutting down parallel to the length of the bones, sawing off the ends, and treating the case as a simple fracture. Our illustrious countryman, Dr. Physick, has invented a method more mild and efficacious; it consists in

passing a seton through the limb, between the fragments which produces the necessary inflammation. This has been twice performed, and with complete success. The late Mr. Birch, one of the surgeons of St. Thomas's Hospital, has procured an osseous union in several cases, by passing electric shocks through the limb. In a recent English publication it is stated, that blisters have been applied with success. The treatment by friction, is easier both to the operator and patient, than either of the preceding operations; therefore, if found to possess equal advantages, it certainly claims a preference; at least, it is worthy of a trial before having recourse to one of a more serious nature. It will be found to be more effectual, I presume, in cases of preternatural joints in the fore-arm and leg, where one bone only has been fractured;—the sound one prevents the fractured ends from passing each other, which occasions absorption of the corners, and leaves them of a conical form; in which case the approximating surfaces are less.

After rubbing the fractured ends against each other, the limb must be placed in splints as for a recent fracture. The operator must judge of the violence necessary, to produce sufficient inflammation.

This operation was known to the ancients; for we find it described by Celsus, who probably learned it of his predecessors. Modern surgeons (perhaps from its simplicity) have spoken lightly of it.

AN INSTANCE

OF

A CHANGE OF COLOUR,

IN THE

SKIN OF AN AMERICAN INDIAN.

By Emery Bissell, M. D. of Clinton, N. Y.

COMMUNICATED BY

Dr. J. KNIGHT,

Corresponding Member of the Society.

Read the 3d of June, 1817.

The case of a change of colour in the skin of the Indian, a brief statement of which I transmitted to you some time ago, I have since examined with particular attention; and am now able to furnish you with a more circumstantial account of it. Should you consider the facts of such importance, that a knowledge of them might in any degree promote the great interests of our profession, I feel it a duty to comply with your request for liberty to publish them.

The subject of this singular phenomenon, is Samuel Adams, belonging to the Brotherton Tribe

of Indians, living in this vicinity. He is now ninety years of age, and has been gradually becoming white for the last thirty years of his life. Considering his great age, he is remarkably vigorous and healthy ;—having ever been able during the warm season of the year, to attend to the cultivation of his land, or ride on horseback almost any distance. He so well retains possession of his mental faculties, that I have no hesitation in giving full credit to the statement, which he has made to me, of the facts connected with the present subject.

From his own relation, corroborated by the testimony of several of his relatives, I obtained the following account of the first appearance, and subsequent progress of this singular affection.

The skin began to undergo a change of colour at the age of sixty; very soon after an attack of acute rheumatism. The first appearance of it, was a small white patch near the scrobiculus cordis. Soon after this, spots of the same colour occurred on different parts of the body and limbs ; gradually increasing both in size and number.

He says, he was at this time greatly alarmed, and visited the different mineral springs in this state, in the hope of removing a colour so odious to him by ablution in their waters. Finding these measures ineffectual, and being convinced that no danger was to be apprehended from a white skin,

he relinquished the idea of regaining his native colour; and, (to use his own words,) "patiently submitted to become like the white men in every thing, but their dishonesty."

Since it commenced, the change has been constantly going on, though not in a very uniform manner;—at times progressing very rapidly, at others, remaining nearly stationary. These irregularities seem never to have been influenced by the season of the year, as the same have occurred at all seasons. The original colour, at this time, remains only on the forehead, forepart of the face and neck, with a few small patches on the arms.

The skin on the body and lower extremities, is perfectly white, soft, and pliable,—having nothing of a dull chalky appearance; neither does it possess the livid hue, generally observable in the skins of albinos, but is remarkably fine and clear. It has, in fact, a much nearer resemblance to the delicate skin of a female, than to that of a man of "fourscore years and ten."

In those parts which have become white, perspiration has always been somewhat less than in the others. They are also more sensible,—being much more susceptible of the effects of heat and cold, and are often blistered by the heat of the sun. They are, likewise, very tender, and bleed much when cut or lacerated, and heal with difficulty. Neither the pigmentum nigrum nor hair has undergone any other change than is incident to old age.

The latter is moderately grey, and the eye presents no other than the dim, cloudy appearance generally found in the eyes of old people. His vision is now tolerably perfect, and he assured me it was never in the least impaired, until the age of eighty. Except perspiration, and cutaneous sensibility, I could not discover that a single function of the system had ever suffered any derangement in consequence of this state of the skin.

The secretions and excretions are natural, and he now labours under no disease, other than a trembling of the limbs, occasioned by a paralytic shock about eight years ago; with a slight cough which attends him in the winter.

He has had no children since the age of sixty; consequently, the case furnishes no facts which enable us to determine how far a change of colour in the skin of the parent, might affect the complexion of the offspring.

Whether the disease which immediately preceded this departure from the ordinary course of nature, had any influence in its production, is extremely problematical. It appears probable to me, it had none; I have thought proper, however, to state the fact, and leave you to draw what inference you please from it. No predisposition to a change of colour seems to have been discoverable, before the change actually begun.

Adams affirms, that he never was in his life before afflicted with any cutaneous disease except

the itch, and that but once or twice; that his complexion was much darker than is common among those of his own race, or, as he says, he "was a very black Indian."

The present, as far as I know, is a solitary instance of its kind. I have made particular inquiry among some of the oldest members of the tribe to which Adams belongs, for similar occurrences; but none of them have ever known one, either among their own or any of the neighbouring tribes; neither have I ever heard of an albino among the Indians in this latitude. They are, however, said to be found among those of the Isthmus of Darien and other places lying under the same parallel. The condition of the skin, in those instances where its colour has changed in adult persons, appears to differ considerably from that in which the same affection is congenital. That it occurs in consequence of a deranged action in the vascular portion of the rete mucosum, cannot be doubted; but whether from deficient secretion, increased absorption, or an actual change in the quality of the colouring matter, may perhaps be deemed a subject of dispute. In the present case, the latter seems to me to be the fact. I have also seen changes somewhat analogous, in the skins of white people; certain parts becoming of a light brown or snuff colour; and the parts thus affected interspersed with spots preternaturally white. For a perfect explanation of all these phenomena, we

must be indebted to future discoveries,—perhaps, to be made by future generations.

I am, Sir, respectfully,

Your obedient servant,

EMERY BISSELL.

J. KNIGHT, A. M.
Professor of Anatomy, Yale College.

Clinton, N. Y. March 27, 1817.

AN ACCOUNT

OF A

FAMILY PREDISPOSITION

TO

HEMORRHAGE.

By Drs. William and Samuel Buel.

COMMUNICATED BY

Dr. SAMUEL BUEL,
Corresponding Member of the Society.

Read the 26th of July, 1817.

The subjects of the following account are the descendants of the Rev. Timothy Collins, the first pastor of the town of Litchfield, Con. So far as we have been able to ascertain, the first manifestation of *Hemorrhagic Predisposition* was in the male children of his son Oliver. We cannot, by diligent inquiry, learn that there was any indication of this disposition, in any of their predecessors, on either the male or female side. Oliver Collins had several sisters and brothers, who had children to the second and third generations; in none of whom do we find that there has been any manifestation of the hemorrhagic trait.

Oliver Collins had four sons and two daughters. In all of the sons, this predisposition discovered itself, in an extreme degree, from early infancy, and continued through life. Three of them bled to death. It is not known where the fourth is, or whether he is alive. Two of them, although frequently reduced by hemorrhage to a state of exhaustion threatening the extinction of life, lived to adult age. One of them, eventually died from a hemorrhage induced by the extraction of a tooth; the other, from a hemorrhage following a slight contusion of the fore-finger. The one which died in childhood, bled to death from a slight laceration of the tongue by the teeth, occasioned by a stroke under the chin. It is related of these persons, that after experience had taught them their liability to hemorrhage, they acquired an extreme sensibility in relation to their danger,—shuddering at the sight of edge tools, and avoiding, with the utmost caution, all exposure to them.

The next appearance of a disposition to bleeding, was in a son of Mrs. Baldwin, one of Oliver Collins's daughters. It may be noticed here, that the other daughter, Mrs. Gatty, has both male and female descendants, in none of whom has this hemorrhagic constitution appeared. Mrs. Baldwin's son possessed it in an equal degree with his uncles. He lived, we believe, till near the age of puberty, when he bled to death from a slight wound caused by the fall of a pewter plate on his foot.

The last instances in which this family characteristic has discovered itself, are the male children of Mrs. Kilborn, a daughter of Mrs. Baldwin. She has had four sons, in all of whom a tendency to bleeding has been strongly marked, since early infancy. In her daughters it has been absent. Two of the sons have already, in childhood, fallen victims to hemorrhage. Another son, who was drowned at the age of eighteen months, had exhibited the hemorrhagic predisposition as strongly as his brothers; and once bled almost to death from a rupture of the frænum of the upper lip. The death of one of the boys was caused by a hemorrhage proceeding from a wound produced by a stub penetrating the bottom of the foot. He died in about forty-eight hours from the time of receiving the injury. His brother died after extreme exhaustion induced by nasal bleeding. He had an abscess in the leg, which discharged a short time previous to his death, and which might have co-operated with the loss of blood, in exhausting the powers of life. Both of these boys died in the course of the last summer. The only surviving son has been frequently reduced to a state of exhaustion threatening life, by hemorrhage from the nostrils, small lacerations of the frænum of the upper lip, and slight wounds in various parts of the body.

In subjoining a few remarks, and stating some more facts relative to this subject, we must be considered as confining ourselves generally to the

Kilborn branch of the Collins family ;—the other cases not having come under our personal observation. Indeed, a number of years have elapsed since the deaths of the other victims of this remarkable predisposition. We may, however, premise the general remark, that we cannot discover that there has been, in any instance, in the female connexions of the Collins family, any evidences of hemorrhagic trait.

It may be remarked of the Kilborn boys, that there is not only a strong disposition to hemorrhage, when the blood-vessels are wounded, but that there is also a tendency, as strongly marked, to plethora and spontaneous hemorrhage. They have all of them, and we believe the same to be true of their bleeding predecessors, had frequent hemorrhages from the nostrils, gums, and particularly from the frænum of the upper lip.

In all instances, slight contusions are followed by extensive ecchymosis, and a great degree of tumefaction. From a slight contusion on one of the knees of Kilborn's surviving son, received eighteen months since, enormous tumefaction ensued, with rigidity of the joint, from which he is not yet perfectly recovered. The boys when beginning to walk, have for a number of months perpetual ecchymosis about the nates, from the contusions received by falling on them. The plethoric state of system which takes place whenever any considerable time elapses without hemorrhage, is evidenced by a flushing of the face, sense

of fulness about the head, indisposition to active exertion, and all the usual symptoms of plethora. Their countenances have always a sallow, pallid hue, not unlike that which is observable in those who have recently had fevers from the operation of marsh effluvia. This sallowness is not absent when the blood-vessels have a plethoric fulness; the face is flushed, exhibiting a complexion strikingly different from the red and white tints of health. When the vessels are drained by hemorrhage, the countenance is sallow and pale in the extreme.

We have never witnessed in the male part of the Kilborn branch, any wounds of sufficient size to have the current of blood, in case it was arterial, assume the *per saltum* motion; but the strong impetus with which the blood is discharged, and the powerful resistance which it opposes to all remedies, whether mechanical, or of other kinds, in whatever manner applied, would seem to be strong evidence that the blood is arterial. The blood is not destitute of coagulability; large coagula are frequently formed about the orifices of the wounds, but the strong impetus with which the blood flows, overcomes their too feeble resistance. When by any means the hemorrhage is suppressed, the part above usually becomes distended, livid, and intolerably painful, so that relief is obtained only by permitting a recurrence of the bleeding. Slight wounds have, in some instan-

ces, healed by adhesive inflammation. We have not discovered any mal-conformation, or unnatural distribution of the blood-vessels generally, nor in the valvular construction of the veins particularly.

It has been noticed in some of Kilborn's boys, and it may have existed in all, that they have had during the debility existing after hemorrhage, depraved appetites; one of them was disposed to eat sand, another common earth.

The foregoing are such facts in relation to this singular family affection, as now occur to our recollection. It was not until some time after witnessing the above cases of hemorrhagy in this family, that a statement was requested from us for publication; otherwise we might have been more attentive in our observations, and been able to be more particular and more methodical. We might have obtained additional facts to assist the pathologist in forming a theory of the affection. We confess ourselves, at present, unable to form a theory satisfactory to our own minds. We are not satisfied even whether the proximate cause be in the fluids or solids. If in the former, a chemical analysis of the blood might lead to some discovery adapted to throw light on the subject; if in the latter, an inspection of the lungs, and sanguiferous system generally, might develope some theoretical data.

CASES

OF

PNEUMONIA TYPHOIDES,

WITH REMARKS.

BY Dr. WILLIAM TULLY,
Corresponding Member of the Society.

Read the 26th of July, 1817.

J. C. between fifty and sixty years of age, a common labourer, possessing a strong constitution, but accustomed to habitual, periodical fits of intemperance, during which he frequently lay in the open air, for two or three nights in succession, without regard to cold, storms, or any other variety of weather, complained, Thursday, January 7th, 1813, of catarrh, with wandering pains about the thorax, and load at the lungs. Contrary to his wishes, the family, in which he then was, thought it best to call medical assistance. On the arrival of the physician, he was found walking about the house; tongue clean and moist, with no unusual thirst, or diminution of appetite; skin dry, but not husky,—cool, but not constricted,—having felt

neither rigors, nor flushes of heat; neither listlessness, sense of debility, nor aversion to motion. His pulse appeared in every respect natural, being full, strong, and without tension, or acceleration. He complained of slight dry cough, which rather aggravated the pain before mentioned. His bowels were somewhat constipated.

He imagined that he had the precursory symptoms of common pleurisy, to which he had formerly been subject; and that all which his case required, was blood-letting. Venesection, however, was judged not to be expedient; and as no epidemic was then prevailing, the case was considered as common cold, supervening upon the customary effects of debauch. A cathartic powder, consisting of twenty grains of jalap, and ten of calomel, was advised; and this directed to be followed by twelve grains of pulv. ipecacuan. et opii, night and morning. The physic was slow in its operation, but finally brought away a large quantity of peculiarly dark coloured bilious matter, and gave essential relief to the pains about the chest, (which it was thought possible might be rheumatic,) and likewise, to the cough, and weight at the lungs. The patient imagined himself considerably better; and, although the weather was then intensely cold, exposed himself considerably by going out unnecessarily. On Saturday, he was again visited, and found with some aggravation of symptoms, but still walking about the house, and out of doors.

At this time there was no alteration in the state of the tongue, skin, or pulse. The cough, pain, and weight in the chest a trifle increased; no expectoration, and no movement of the bowels since the operation of the purgative. A small dose of calomel and rhubarb was directed; a large epispastic laid upon the region of the thorax, and a moderate use of tincture of opium, and cordials superadded to the Dover's powders. Saturday night, he sat up unusually late; was more cheerful than he had been, since the commencement of his indisposition, and went to bed under impressions that he was considerably better. Somewhat after midnight, a person, who slept in the room with him, observed that his breathing was peculiar. He rose, lighted a candle, and made particular inquiries how the sick man was. He replied, better than he had been since his illness. His companion returned to bed, and slept till morning. When he arose the patient was in a comatose state, and before a messenger could get away for a physician, he expired.

I. S. between fifty and sixty years of age, a hard labourer, who had made free use of cider, and distilled spirits, and who was at the same time subject to slight asthmatic complaints, was observed on Monday 10th of May, 1813, to have a staring, glassy appearance of the eyes, and to falter as he walked. Inquiries were made, by his friends, whether he was not indisposed, to which he repli-

ed in the negative, and persisted in his answer. His friends, however, being alarmed, medical assistance was called. On the arrival of the physician, he was still walking about, but with the same faltering step. His respiration was short, and rather laborious; his tongue clean and moist; no thirst, and but little appetite. His pulse was full, soft, and preternaturally slow; his skin cool, dry, husky, and mottled in its appearance. He had no cough, and consequently, no expectoration. He said, that he had rather a sense of fulness at the lungs, but was perfectly well; and wondered why he should receive a visit from a physician. On critical examination, there was evidently some mental derangement, which betrayed itself by an occasional incoherent remark, or a sudden start without any external cause, as well as by a false estimate of his own situation.

His bowels being in a costive state, a cathartic of rhubarb, calomel, and tartrite of antimony, was prescribed, and after its operation, (which was attended with discharge of much dark-coloured bilious matter,) a large epispastic was applied to the region of the chest, and sinapisms to the feet; and at the same time, a diaphoretic powder, consisting of ipecacuanha, camphor, calomel, and opium, was directed, together with warm aromatic infusions, and sweating regimen in general.

This plan was pursued, with but little effect, owing, no doubt, in part, to the inveteracy of the disease, and in part, to the circumstance, that no

one in the family could prevent his walking about house, and even being much out of doors, without his accustomed clothing.—Next day the blister had hardly produced any redness of the skin, though spread thick with strong plaster. The oppression at the lungs had increased; the tongue had become dry, and had a cracked appearance; the delirium was occasionally raving; and his strength was so much diminished, that he sometimes fell, as he was walking. Foreseeing a fatal and speedy termination of the case, if the symptoms continued in this train, a consultation was requested.

On the 13th, a neighbouring physician visited the patient, in company with the one first called. At this time, there was a general aggravation of all the symptoms. The sick man was unable to go out of the house, but still persisted in walking about, within doors. The diaphoretic powder, and regimen were recommended to be continued, and more efficiently made use of. The epispastic was strengthened by an addition of more powder of Spanish flies, and re-applied, after the part had been chafed with hot vinegar and spirit; new ones were laid on the inside of the ancles and wrists, and a liberal use of cordials directed.

On the 14th, there was no very sensible effect from any of the medicines. The patient was now confined to his bed, and in rather a comatose state. Internal exhibition of tincture of Spanish flies, was superadded to the previous course.—On the morning of the 15th, while the physician was on

his way to the house of the patient, he was met by a messenger, to inform him, that after his departure the afternoon before, the coma and all the other symptoms grew rapidly worse, and that during the night, the sick man had breathed his last.

REMARKS.

The two foregoing instances of disease, happened in different parts of Connecticut; the first, just previous to a few sporadic cases of our late Epidemic, and about a year anterior to a pretty extensive, and mortal prevalence of it, in the town where the patient resided; the second, just at the close of a distressing season of sickness and death of the same kind, in the vicinity of the deceased. These circumstances, together with the course, progress, and result of both, unequivocally designate them as belonging to the Epidemic.

It is believed, that precisely similar cases were rather rare; but still it is presumed, that a few such must have happened, wherever this formidable malady prevailed. Be that as it may, however, none more forcibly bring up the question, "*What is the disease?*" than the examples now before us. For a satisfactory answer, however, we shall look in vain, to the various and contradictory opinions of medical men;—each, too often, maintaining his own, in such a manner, as to imply the censorious conclusion, that both the theory and practice of every one else, are founded upon mistaken views of the nature of the complaint; and

of consequence, are radically, and totally erroneous.

As these opinions are principally before the public, I shall not take the trouble of recapitulating them, or of pointing out how far they severally appear to bear the test of examination and comparison; but shall proceed to state, in as few words as possible, what seems to me, from an attentive perusal of most that has been written, and from considerable opportunity of observation in two or three different parts of the State, to be a fair and liberal view of the subject. In my opinion then, the Epidemic, as it has appeared in different sections of the country, has been one and the same disease; and yet, from its peculiarities, in different places, or even in different instances, in the same place, should be nosologically arranged under different genera. It may, perhaps, be characterized by the following short definition, viz.:—*A local passive inflammation, (generally of some viscus,) attended with typhoid fever.*

When the brain, therefore, is the seat of the local affection, it is *Phrenitis Typhoides;*—when the lungs, liver, or intestines, it is *Pneumonia, Hepatitis*, or *Enteritis Typhoides*, &c. Between each of these different forms of the disease, there has been a difference in the symptoms, and necessary treatment,—corresponding to that which is well known to exist between cases of active inflammation of the same viscera, attended by synocha, or inflammatory fever. The relation between the low, and

the active complaints, I think, might be happily expressed, by denominating the latter, *Phrenitis Synochoides*, *Pneumonia-Synochoides*, &c. Phrenitis then, would constitute a genus, of which there would be two species: viz. *P. Synochoides*, and *P. Typhoides;* and so, of the other genera of the order Phlegmasia. Nosological arrangement, in this instance, as probably in all others, is of no further use, than as it facilitates the first acquisition of a knowledge of diseases,—keeps in view the relation which different cases bear to each other, and supplies us with a name, which is, at least, necessary for popular satisfaction, if for nothing else. I know it has been considered, by a few ingenious individuals, as an evil in medicine. If so, (and I am by no means disposed to allow it,) it must certainly be esteemed a necessary one; and great care, therefore, should be taken, not to permit it to obscure analogy, or convey erroneous ideas.

Perhaps some will revolt at the idea of passive inflammation, as a sort specifically distinct from the active; but I think every attentive observer of nature, must be compelled to admit, in conformity to the doctrines of John Hunter, that inflammation does not essentially depend upon the quantity of action, but altogether upon the quality; and this being admitted, both reason and experience abundantly evince, that there may be, and actually is, a similar gradation from high to low cases, (according to the vital powers of the part affected, and the nature of the Epidemic

cause,) to that which is universally admitted to take place in fevers; and consequently, that there is as much foundation for a distinction of inflammation into active and passive, as of fever, into Synocha and Typhus. The unity of inflammation is, certainly, not more complete than that of fever.

As the sympathetic febrile affection of the system, from active inflammation, is Synocha, so that resulting from passive inflammation is, as we should expect, Typhus.

That many cases of inflammation should occur, which are intermediate between the active and passive sort, is no more to be wondered at, than that there should be febrile affections, which are neither unequivocal Synocha, nor Typhus.

The application of these principles, to the Epidemic, as it appeared in different places, and at different seasons, must be obvious. The dreadful Spotted Fever of Hartford, was, no doubt, in most of the worst instances, Phrenitis Typhoides. In these, the local affection was sometimes so powerful, and the engorgement of the brain with blood, so great, as to cause too complete a prostration of the powers of the system, to admit of any sympathetic febrile affection; and hence the coldness, insensibility, and numbness of the surface,—the almost total suppression of arterial action,—the singular affection of the stomach,—the deep coma, and in some instances, the dreadful pain in the head, as described by Drs. Strong and Fish.

Other cases have been Pneumonia Typhoides, and of course, attended with a variation in the external symptoms, correspondent to the different structure and functions of the viscus primarily affected. The writer of these remarks has witnessed a few instances, in which the liver and the intestines have been the seat of the local affection, and accompanied too with such a diversity of phenomena in the disease, as might be reasonably expected.

In all this variety, it is not matter of surprise, that there should have occurred mixed cases, which it was impossible to refer to any of the distinct forms specified, or that there should have been a few instances of pure Typhus; but these facts, instead of unsettling our doctrine, tend rather to confirm the principles assumed.

AN INSTANCE

OF

DEATH from ONANISM.

BY Dr. WILLIAM TULLY,

Corresponding Member of the Society.

Read the 26th of July, 1817.

E. B. aged sixteen, of active habits, of bodily size rather less than medium, and as it respects strength of constitution less vigorous than most youths of his age, complained the 3d of October, 1812, of indisposition.

For some weeks previous to this, his friends had observed, that his countenance was becoming pale and unhealthy; that universal emaciation was stealing upon him, and that he constantly manifested unusual peevishness. His appetite during this period, was not observably augmented or impaired, except for liquids. This thirst, for some time, had been uniform and considerable.

As the changes, however, in the state of his health, had been from day to day hardly appreciable, and as he made no complaints of illness, little attention had been paid to these circumstances. About the 20th of September, an occasion

presented, and he was observed to manifest an extraordinary relish and craving for new cider. From thenceforth, he sought every opportunity of indulging this appetite, almost without limit; and made use of stratagems to obtain the gratification of his desires, to which he had previously been a stranger. His desire for food, from this period, diminished; and though tolerably active in his customary employments, yet a rapid diminution of strength was observed. About the 1st of October, an unusual secretion of urine, and an almost incessant disposition to empty the bladder, was perceived. On the 3d, as mentioned above, he first complained of indisposition, and on the morning of the 4th, first had medical advice.

At this time, the symptoms of his case were as follow: viz. Extreme emaciation, but not so much diminution of strength, as to prevent walking about; complexion very pale; expression of the eyes, and whole countenance haggard and wild, though no mental derangement could be perceived; no appetite for food; great thirst; skin dry and cool; tongue dry, and covered with a reddish brown crust; pulse about 130 beats in a minute very small, and receding under slight pressure; indescribable, dull, distressing sensations about the precordia, and in the back; shortness of breath, frequent micturition, and copious discharges of urine, which was limpid and colourless. The preceding night had been passed in a very sleepless and restless manner.

At this time, it was ascertained, that he had been in the habitual nocturnal practice of onanism for about six months, frequently repeating it five or six times in a night.

On being questioned, whether he had not been sensible of the pernicious effect of this baneful practice, it was found, that for some time previous, he had experienced unpleasant and distressing sensations, as an immediate consequence of every orgasm; but so much was he under the dominion of this deadly habit, as to be unable to resist its influence, notwithstanding his conviction of its fatal consequences.

In short, it was judged, that his whole malady was the ultimate result of this practice.

Its primary effects, seemed to have been derangement of the digestive organs; and the secondary ones, the symptoms above detailed.

Draughts of impure diluted acetic acid, and the alkali soda, in an effervescing state, were prescribed, with a view of obtaining the exhilarating effects of disengaged carbonic acid in the stomach.

Wine and camphorated tincture of opium, were likewise directed, together with bark of officinal cinchona, and nutritious broths. As an external application, frictions with vinegar of Spanish flies, were made use of.

At 4 o'clock, P. M. he was again visited. He was still walking about the house; pulse 140, and weaker, with evident and considerable diminution of muscular strength; incipient delirium, and gen-

eral aggravation of the morning symptoms. At this time, the solution of acetate of ammonia was substituted for that of soda; the camphorated tincture of opium continued; and the wine, and powder of bark increased.

At 7, he was found upon the bed; symptoms still farther aggravated; great restlessness and distress; in a state approaching to coma; involuntary and copious discharge of urine; frequent, and incoherent exclamations of terror and agony; voice hollow; respiration short, and laborious.

To the abovementioned treatment, was added warm alkaline bath, wrapping in flannel, and the internal use of nitric acid.

At about ten, he became completely comatose, and at about two, next morning, expired.

REMARKS.

The ill effects of the practice, which apparently gave rise to the preceding case, have been questioned by John Hunter, in his Treatise on the Venereal; but with due deference to his exalted reputation, I must say, that his argument of its universality, and the little apparent evidence against it, in my opinion, apply equally well to intemperance in the use of distilled spirits.

That popular treatises upon it, tend rather to increase than diminish the evil, I readily admit; but as a physician, I am firmly convinced, that many a vigorous constitution, which though it does not sink under it, yet receives such a shock by

it, as is frequently followed by premature old age, and a host of infirmities. Proofs upon a subject of this nature cannot be had, but the highest degree of probability is attainable, from an occasional case, like the one now detailed. Ought not such considerations then, to influence parents to keep their children in situations unfavourable to the acquisition of such habits, or the practice of them, when unfortunately contracted? This is perhaps all that can be done, and I am sensible, that in many cases, such precautions, can be of little avail.

In the mean time, perhaps, some pathological improvement may be made from the subject. It has been the commonly received opinion, that the part of the system first affected by Onanism, is the brain, and its production through the spina dorsi; but I have long been convinced, that the stomach is first peculiarly deranged, and these other parts in consequence. In this case, paleness, emaciation, and an unusual appetite for liquids, were the first observable symptoms. Speedily, however, further depravity of appetite, is manifest, and this of such a nature, as to be followed with a certain degree of diabetes. Still such symptoms continue, as we should expect would result from an affection of the stomach. Extreme emaciation, tongue covered with a reddish brown crust and dry, anorexia, thirst, &c. without derangement, fever, or such diminution of strength, as to prevent walking about—all mark a

primary affection of the stomach. But the brain and nerves, as we should expect, are soon drawn into consent, and distress about the precordia, and in the back and head, with incipient delirium, soon supervenes, and the patient at last expires in a comatose state.

In the instance now in question, it was desirable to make trial of phosphorus, as recommended by European practitioners; but in the retirement of a country place, none could be obtained. Tincture of Spanish flies, exhibited internally, might have been of service; but just at that time, none was at hand. It is not at all likely, that either this article or the other, would have saved the patient; but a circumstance of this kind will not justify any relaxation in our exertions. It is highly desirable, that the efficacy of phosphorus, in the cure of diseases should be further tested, and the results made public; and in case its value should be equal to what we have been led to expect, that it should be in the hands of physicians more generally, about the country.

CASES

OF

RETENTION of the PLACENTA,

ACCOMPANIED BY HEMORRHAGE,

WITH OBSERVATIONS.

BY FRANCIS E. BERGER, M. D.

Fellow of the Society.

Read the 2d of September, 1817.

Case 1. Mrs. S.* was attacked with a considerable flooding, during which a fœtus of about four months was expelled. After the expulsion of the fœtus, the flooding continued to such a degree, that the patient fell in a state of extreme weakness; frightened at her situation, her husband sent for me.

I found her in a state of diliquium almost without pulse and swimming in her blood. The midwife who was with her, told me that two hours before, a fœtus of about three months had been expelled, but she was not sure whether it was ac-

* The two following cases occurred in the practice of my Father, and were related to me by him.

companied by the placenta. However, she thought she had seen it among the clots of blood which were discharged, but that she had thrown them away, so that I was incapable of ascertaining whether her belief was well founded or not.

I then directed all my attention to the mother. I applied some compresses of cold water on the abdomen, and made her take pretty freely of lemonade, strongly acidulated with sulphuric acid. The flooding soon ceased, after using these means, and the patient recovered her senses, which she had lost for some time.

The same remedies were used a few days longer. As soon as the discharge of blood ceased, the patient, who had until then taken only light broths, made use, by degrees, of more solid nourishment; and I advised her to drink some port wine.

Her recovery was sufficiently rapid to permit her, three weeks after this accident, to attend to her ordinary occupations. From that time I paid no more attention to the patient, I had not the least suspicion of the placenta remaining in the womb; and it was more than twenty days after I had last seen her, that I was sent for to look at something that had been expelled after some very severe pains, and great flooding.

I examined very minutely this body, and found it to be a placenta of the size which is common between the third and fourth months of preg-

nancy ; this was the 43d day after the expulsion of the fœtus, the patient had no accident, and soon recovered.

Case 2d. I was called to Mrs. F. who was taken some hours before with a flooding, accompanied with uncommon pains in the region of the kidneys ; she had then been pregnant about four months, and this accident had taken place without any apparent cause.

I prescribed rest and the use of an acidulated drink; but notwithstanding these means, the pains increased, and on the same day, a fœtus was expelled. I was then absent, and it was preserved until I returned. Not observing the placenta, I inquired of the nurse whether any thing more had been discharged; she assured me that she had seen nothing, which convinced me that the placenta was still retained.

The patient having very little pain, and the flooding being very slight, I advised her to keep her bed; take nourishment of a light kind, and wait until nature should expel what remained in the womb. On visiting her the next day, I was surprised to find her in the same state, suffering very little inconvenience, and with but little flooding. Her mind being extremely agitated about the Retention of the Placenta, in consequence of its liability to become corrupted, and produce fatal effects, I endeavoured to quiet her as

much as it laid in my power; and prescribed only the use of some wine and rest.

After four or five days, the patient was so well that she got up, and attended to her ordinary occupations;—experiencing no other indisposition except the sensation of a heavy weight in the hypogastric region.

She remained in this state until the 17th day after the expulsion of the fœtus, when the flooding re-appeared much more violently than at the first time, accompanied with excessive pains,—during which the placenta came away, as fresh as if it had immediately followed the fœtus; after this she soon recovered.

Eighteen months after the above accident, Mrs. F. met with a similar one, when the placenta remained seven days in the uterus, after the expulsion of the fœtus.

Dr. Sacombe, professor of obstetrics, at Montpellier, has related a very interesting case of this kind in the *Medicine Eclairée*, by the celebrated Fourcroy. The placenta, in this case, remained twenty-one days in the uterus after the expulsion of the fœtus, and the patient soon recovered.

From the above cases, and those which will be mentioned, it appears, that the retention of the placenta in the uterus is not so dangerous as it is commonly believed; and, that it is most frequently expelled by the operation of nature alone.

The opinions of physicians of the highest res-

pectability, having been divided on this very important subject, it would require a larger number of cases than what we have, to pronounce positively in favour of any of them.

There would be a culpable pretension in attempting to prescribe positive rules on a subject of so much importance, when we every day witness, that the judicious and experienced physician, even when it lays in his power to extract the placenta without effort, either to dilate the orifice of the uterus or detach the placenta from the parietes of the womb, yet hesitates upon the steps which he is to follow, on account of the insufficiency of our means, and of the variety of opinions advanced on this subject.

Those authors who have discussed the question, whether it is safer to proceed in some cases of emergency, to extract the placenta by manual assistance, or to trust to the operation of nature, do not seem to have taken sufficiently into consideration the obstacles, which make a great difference between abortion in the three or four first months of pregnancy, and this accident in the latter part of gestation ; and from this circumstance, they have too much generalized the precepts which they have given us. The difference is strikingly great; for the less gestation is advanced, the more unyielding and firm is the os uteri ; and thence the greater is the difficulty of dilating it in order to extract the placenta.

I have in several instances of abortion, when

the flooding took place after the fœtus was expelled, tried to accelerate the expulsion of the placenta; but I have always found the use of the hand to be unsafe, from the great force required to dilate the os uteri. I have under these circumstances trusted alone to the operations of nature; which, after a certain length of time, has always succeeded, and the patients have met with no secondary accidents. On the contrary, when delivery takes place at the full time, the orifice of the uterus has undergone such a degree of relaxation, that it opens much easier to the introduction of the hand; and from this circumstance, the operation is not liable to cause so many evils.

Professor Baudelocque remarks in his *Art des Accouchments*, that if there are cases where we are forced to commit the expulsion of the placenta to the operations of nature, and to acknowledge the insufficiency of the art upon this subject, they are never more frequent than after abortion; as the difficulties of delivery increase in general, in those cases, in inverse ratio with the time of gestation.

There is little danger of deferring the time of delivery; for the violence which we may be obliged to exercise in opening the womb, is a remedy which is more dangerous than the evil to be aphended, according to Mauriceau. It is his opinion that, when the orifice of the uterus is firm and unyielding, and there is no very considerable flooding, it is best to confide to nature. In his ob-

servations on abortion, he assures us, that nature generally expels the placentæ of small fœtuses; and speaking of a fœtus of three months which had remained in the womb, he says, that he was compelled to leave the expulsion to nature, which on similar occasions always succeeds, without fatal consequences, two or three days after abortion, and sometimes even later.

Werlhof thinks also, that it is safer to leave the placenta, or a portion of it, in the womb, when there is so much adhesion as to expose this organ to be injured. He adds, that his experience has confirmed him in this opinion; having seen a great number of women miscarry without being delivered of the placenta. After some days or months, this body came away entire, or by pieces and without accident; though it oftener excites fever, on account of the great loss of blood, and the corruption or rupture of the fibres by which it adheres to the uterus: however, I have seen that, notwithstanding the putrefaction caused by the retention of the placenta, particularly when miscarriage takes place in the early part of gestation, it was not attended with fever, nor any other inconvenience.

A lady whom I attended on the Bowery-Hill, miscarried at the fourth month of pregnancy;—part of the placenta came away three days after the expulsion of the fœtus: it had the most offensive smell. I prescribed the use of some mucilaginous injections, and the whole was expelled

in a putrid state, on the fifth day, without having caused the least inconvenience to the patient.

Among the authors who have been great advocates for confiding the expulsion of the placenta to nature alone, we find the celebrated Frederick Ruysch, whose authority is of the greatest weight, as his opinion on this subject, is founded upon the strong basis of fifty years of happy experience; he says, that during all that time, being professor of obstetrics, and having the charge of instructing midwives, he has seen an infinite number of cases where the placenta remained in the womb for days, weeks, and even several months; and it was afterwards expelled without being accompanied by any accident.

Andre Pasta, who is very enthusiastic in his opinion, observes, in discussing this point of controversy, that during the course of a practice of thirty years, he has not seen a single woman perish by the retention of the placentæ of small fœtuses. Though he had often attempted to remedy this accident, he has always seen these small placentæ come away of themselves, in the space of some hours or some days, sometimes entire and sometimes corrupted, and the patients soon recover.

I thought proper to relate particularly, the opinions of these celebrated practitioners upon a point of so much importance, as they seem to be in perfect contradiction with the authorities of the generality of our modern writers—such as Baude-

locque, John Burns, and Kok; the latter of whom has presen'ed a learned dissertation upon this subject before the faculty of Paris. It would be superfluous to recal here all that has been said by these authors, as we are all acquainted with their doctrine, which is the standard of the present practice.

In comparing and reflecting maturely upon the facts and arguments which are advanced on both sides, and enlightening them with the lessons of experience, we shall, I think, not be apt to attach too little faith to the power of nature, by hastening to practise an operation which may have fatal consequences, and without which, many women would be saved;—and on the other hand, we shall not expect too much from the resources of nature by neglecting the extraction of a placenta: for this is the only means to which we can have recourse in profuse hemorrhage.

From a consideration of the facts advanced by all the different authors, and the cases which have come under my immediate observation, I am strongly led to believe, that there are some cases in the latter part of gestation, where manual assistance may be the means of saving the patient; but I think, that in early miscarriage we are most always compelled to trust to the operations of nature; as delivery in this instance is always very difficult, on account of the great size of the placenta, and of the little developement of the neck of the womb.

However, should we meet with a case where the symptoms should be so urgent as to put the life of the patient at stake, we might under such circumstances, follow the precept of Hippocrates, which is, to apply a great remedy to a great evil.

It is thought, however, that delivery of the placenta can take place, if in the moment when abortion happens, one or two fingers are introduced into the orifice of the womb to prevent its contraction: by keeping the orifice open for some time, the placenta is easily expelled; but if we are called some time after it has taken place, we will find a considerable difficulty, in terminating the expulsion of the placenta, on account of the contraction of the os uteri, which will not bear the introduction of the fingers without causing the greatest pains. In this case we must attempt to bring on the contraction of the womb pretty briskly, so as to cause the detachment and expulsion of the placenta.

Long continued frictions upon the belly are sometimes sufficient to fulfil this object. It will be proper to introduce the fingers, at intervals, into the vagina, so as to ascertain the state of the os uteri; and if a portion be partly expelled, it must be seized with the fingers, and detached by very gentle motion, at the same time that frictions are made upon the hypogastric region. It is in this instance that Levret's instrument has been recommended as the best. I think it entirely useless, and perhaps it may be productive of great evil.

In endeavouring to bring away the secundines, attention must be paid, not to do it until they are fully detached, so as not to leave any portion behind. Rashness must be refrained from, if we endeavour to extract, for it may irritate the uterus, and excite a train of fatal symptoms.

The means which appear so proper when hemorrhage is not very considerable, are not those to which we must have recourse when it becomes profuse; if there is no possibility of extracting the placenta immediately, we must abandon all means of extraction, and oppose an obstacle to the flooding, by stuffing the vagina.

To prove its utility, I must refer to the excellent work of Leroux "Sur les Pertes de Sang," and that of John Burns on the "Principles of Midwifery."

REFLECTIONS

ON THE

PULSATION IN EPIGASTRIO,

WITH AN

INQUIRY INTO ITS CAUSES.

BY VALENTINE MOTT, M. D.

Fellow of the Society.

Read the 2d of September, 1817.

THERE are no cases, perhaps, which come under the notice of medical men, that are more mysterious and perplexing than those attended with a pulsatory motion in the epigastric region;—and there can hardly, in any instance of corporeal derangement, be fewer data to lead to satisfactory or correct diagnosis. All the knowledge we possess on this subject, has been furnished by morbid anatomy;—and to this legitimate handmaid of sound pathology must we look for the veil to be rent. Though this pulsation was recorded in the earliest ages of medical science, very little advancement was made in our knowledge of it worthy of mention, until the laborious and invaluable researches into pathological anatomy, by Bonetus

and Morgagni, seconded and supported by the splendid illustrations of Baillie, Lieutaud, Portal, Albers, and Burns.

The dissection of morbid bodies may be said to form one of the most distinguishing characteristics of the present age; and it is to the indefatigable labours of the late much lamented Allan Burns, that we are indebted for the first lucid account of a number of the causes which gave rise to this pulsation in epigastrio.

It was, however, known long before his time, that a pulsation might exist in this region, without being accompanied with an organic affection of the heart and large vessels. He cautions the young practitioner not to decide hastily, for he is convinced of the great difficulty there must be in many cases, of forming an accurate diagnosis, and that it will be wise to wait till death puts it in our power to solve the difficulty by dissection:—"This, if not the best, is at least the safest plan." From examination, it appears, this may owe its origin to either an organic disease of some of the viscera, or parts contained in the epigastric or other abdominal regions, or to some morbid condition of the thoracic organs; which would perhaps justify a division of the causes into organic and symptomatic.

The first would include all those conditions of the parts or organs contained in the epigastric and nearest abdominal regions; and the second, the

morbid state of the thoracic viscera, which the investigation of morbid bodies has developed.

It is intended in this communication to the society, to enumerate the various causes, which dissection has shown to occasion this distressing affection; next, to detail or examine the nature of those several causes, and point out, as far as experience will warrant, the symptoms by which each may be known; and lastly, to subjoin a few dissections illustrative of the subject.

This pulsation may arise from the following causes:—

I. Aneurism of the aorta, cœliac, or superior mesenteric artery.

II. Enlargement or disease of the pancreas.

III. Scirrhus of the stomach, and particularly its lower or pyloric orifice.

IV. Tumours at the root of the mesentery.

V. Nervous irritation.

VI. Enlargement of the vena cava inferior.

VII. Increased solidity of the lungs.

VIII. Enlargement of the heart, particularly a dilatation of its right side.

IX. Adhesion of the pericardium to the heart.

I. Every pulsation in the vicinity of a large artery, and particularly if it is accompanied with a tumour, gives rise to the suspicion of an aneurism. In the extremities, very little difficulty can attend; an accurate diagnosis, for the most part, can be

arrived at. Aneurisms of the large arteries of the trunk are, however, not easily detected; first, in consequence of the adhesions which they contract with the surrounding viscera, and secondly, from the diseases of many other organs, with which they are apt to be associated; the latter of which, alone will produce many of the characters of aneurism.

Aneurisms of the aorta, in different parts of its course, have been known to prove fatal, as dissection has confirmed, without ever having exhibited a single feature of that disease.* Very few aneurisms, however, we believe, are mistaken for other diseases, except in the thorax and abdomen;—it more often happens that other organic affections are confounded with this disease of the arterial system.

Aneurism of the aorta, about the cœliac and superior mesenteric arteries, are of less frequent occurrence, than at other parts of the aortic trunk. Most of the reputed cases of aneurisms, in this situation, originate from some other disease, and the best surgeons are very often deceived.—"When I now" says A. Burns, "meet with a person having a pulsation in the epigastrium, I almost immediately decide in my own mind, that the cœliac artery is healthy. I have met with above twenty instances of pulsating tumours in the region of the cœliac artery, and many of these were by myself and others, supposed to be cœliac aneurisms; and yet it turned out on dissection, that not

* Vide Hodgson, p. 88.

one of all of them had originated from a diseased state of that or any other artery."—*Page* 59, 60.

In another place, this author remarks, that the only case of cœliac aneurism which he ever saw, was not even suspected till after death. It has, however, occasionally been met with in this situation. From its contiguity to the stomach, this organ must undergo considerable changes; which, with the pulsation, (the common attendant,) may be diagnostic of the existence of such aneurism. After a meal, sickness is observed frequently to supervene. By its pressure also upon the lower extremity of the stomach, symptoms have been observed analogous to a stricture of the pyloric orifice. In some instances a very extraordinary and ravenous appetite has accompanied an aneurism about the root of the cœliac artery.

If the pulsation in the epigastrium is strong, we may infer that it is not aneurismal, but produced by one of the other causes: "If," says Allan Burns, "you are called to a patient in whom the pulsation is very perceptible, you may, almost to a certainty, decide, that it is not dependent on organic disease of the arteries."—*Burns on the Heart, page* 265.

The perfect correspondence between the pulsation of the epigastrium, and the action of the heart, is a circumstance strongly diagnostic of the aneurismatic state of the aorta, cœliac, or superior mesenteric artery. Would the arteries in the inferior extremities, beat as strongly and consen-

taneously with the heart, if the pulsation was aneurismal, and particularly, if the tumour was large?

II. The *Pancreas* is so seldom the subject of disease, compared with the other abdominal viscera, that our knowledge of the morbid changes it undergoes, is very limited and imperfect. From its structure and economy, (being similar to the conglomerated or salivary glands,) its diseases might also be naturally expected to bear a striking resemblance, which is actually the case as far as the researches of morbid anatomists have penetrated.

It is subject to calculous concretions, inflammation and its consequences,—as, suppuration, gangrene, and scirrhus; the latter of which has been, by much, the most frequently discovered upon dissection. Worms, in a very few instances, (upon the authority of Lieutaud,) have been taken from the pancreatic duct.

The Pancreas being an organ of very little sensibility, it frequently manifests no symptom which would lead to a suspicion that it was labouring under the least morbid derangement, either in the incipient or advanced state of disease. "I do not know," says Dr. Pemberton, "of any symptoms which will positively point out an incipient, or indeed, a considerably advanced disease of the Pancreas, though I think it may generally be detected by a negative manner of reasoning, if I may be allowed the expression."*

* Pemberton's Practical Treatise on Various Diseases of the Abdominal Viscera, p. 63.

If it were possible to separate or insulate the symptoms which the diseases of this organ exhibit, from those produced by the same affections of the immediately surrounding viscera, some considerable value might be attached to the negative proofs of the author just quoted.—But although the symptoms, from the small degree of sensibility with which this organ is supposed to be endowed, must be comparatively mild, yet they may also evidence only a slighter form of disease of the stomach, gall-bladder, or ducts, posterior part of the liver, or duodenum; and by no means designate, or are diagnostic of any disease of the Pancreas. If a right judgment could be formed, very little benefit would redound to the patient, inasmuch as we fear no remedy has hitherto been discovered, which can be considered specific in the removal of these diseases. It is, however, highly desirable for the honour of the healing art, and the advancement of correct nosology, that we should not only be able to recognise its diseases, but have it in our power to administer the healing draught. To advance an inquiry clouded and obscured with so much difficulty, the sagacity of the pathologist should be united with the labours and researches of the morbid anatomist.

Inflammation of this gland sometimes terminates in suppuration, and the greater part of it is found destroyed. Lieutaud, who has particularly described this condition of it, considers it the effect

of a suppression of some accustomed evacuations, as hæmorrhoids, diarrhœa, &c. It is much more rarely found in a gangrenous state, preternaturally soft, of a violet or livid hue, and emitting a fœtid smell, as related by Haller, Lieutaud, and others. But by far the most common effect of the inflammation is scirrhus, and this condition of it is not unfrequently met with upon dissection, when not the least disease was suspected. Bonetus and Morgagni have related cases and given dissections of the scirrhous condition of this organ, and Dr. Sewell of our own country has published a very interesting dissertation on the diseases of the pancreas, (which has received very distinguished notice in Europe,) in which he enumerates the symptoms of the scirrhous state of it, and the appearances exhibited upon dissection, in several cases which have come under his own notice.*

Although we believe the symptoms of the diseases of this organ are for the most part not only ambiguous, but very fallacious, still we are willing to admit, that of all the morbid changes which it undergoes, the scirrhus of it is most likely to be detected, particularly when it exists in very thin and emaciated habits. The obtuse pain, mentioned by Riverius; the nausea, vomiting, acidity of the stomach, and incurvation of the body, related by Bonetus, Morgagni and Dr. Sewell, as constituting leading features of the disease, must

* New-England Journal, vol. 2, p. 20.

ever be uncertain and deceptive. All these effects are frequently known to accompany a scirrhus of the pyloric orifice of the stomach; and we at the same time know, that the pressure of the head of the pancreas, enlarged and hardened by scirrhus upon the pylorus, by intercepting the exit of the alimentary mass from the stomach, will give origin to precisely the same phenomena.

From the oblique situation of the pancreas across the spine, and its relation to the aorta, another symptom frequently arises, particularly when this gland is in a scirrhous condition,—which is, a pulsation in epigastrio. This symptom appears not to have been long noticed,—we find it mentioned by Burns,* and in a note at the bottom of the last page of Dr. Sewell's dissertation, he informs us, that the late Professor Warren of Boston, whom he justly ranks among the most eminent American practitioners, considered a tumour in epigastrio with a strong pulsation, as generally accompanying this disease. But we believe Dr. Sewell could not have been acquainted with the various and opposite causes which may occasion this pulsation, when he adds: "Perhaps this is the only invariable pathognomonic symptom of this disease."†

This pulsation may arise, either from an interruption to the free circulation of blood through the hardened viscus, or what is more probable, from the pressure of the enlarged and hardened pan-

* Burns on the Heart, p. 268.

† New-England Journal, vol. 2, p. 25.

creas upon the aorta; thereby intercepting the free passage of blood through it, by which it accumulates and distends the trunk of the aorta above, into more or less of an aneurismal state.

In the case related by Portal, before referred to, the pancreas was very much enlarged; it compressed the aorta so powerfully against the spine, that it was aneurismal above, and the enlargement extended not only through the whole aorta above the diaphragm, but even affected the left ventricle of the heart.*

III. The *Stomach* when affected with a scirrhous or carcinomatous disease, is generally very much diminished in size,—insomuch that it will contain only a few ounces of fluid. Its lessened dimensions appear to be owing to a thickened state of the coats, and a growth of them inwardly. In one instance, Dr. Monro Jun. measured the quantity of fluid, the stomach in such a condition would hold, and found it to be only four ounces.† A very remarkable specimen of an unnatural sized stomach, in a scirrhous state, is preserved in Dr Monro's Museum at Edinburgh;—it was so large as to fill the greatest part of the cavity of the abdomen.

The lower or pyloric orifice is a much more frequent seat of cancer, than either the body of the stomach or the cardia.

The situation and connections of the right ex-

* Cours d'Anat. Med. Tom. 5, p. 356.

† Monro's Morbid Anat. p. 329.

tremity of the stomach makes it less frequently a cause of pulsation in epigastrio when diseased, than a scirrhous condition of the pancreas. It has accordingly been seldom recorded by those who have related cases of this disease, and we believe, only in latter times. Among the principal, who have noticed it, we may mention Baillie,* Burns,† Monro‡ and Francis.§

In a case related, by Allan Burns, of a middle aged male, who gradually declined after many months, with a violent pulsation in the epigastrium attended with a very perceptible tumour, the following appearances were found upon dissection. The side of the stomach, colon, and omentum, formed a tumour, about the size of a large orange, and of a solid consistence. The morbid parts lay over the root of the cœliac artery,—attached also to the superior mesenteric vessel. It was from the impulse of these, and from the communication of action from the aorta, that the apparent pulsation proceeded. The arterial system was healthy, but the heart and vessels were very small.‖

The close adhesion of the stomach to the surrounding diseased parts, and its firm connection to the aorta and other great vessels, may cause the pulsation to be conveyed either from the aorta itself, or from some of the subjacent smaller arte-

* Morbid Anatomy. † Dis. of the Heart. ‡ Morbid Anatomy.
§ Trans. Lit. and Phil. Soc. of New-York, vol. 1.
‖ Letter from A. Burns, in Monro's Morb. Anat. p. 340, 41.

ries. Like the scirrhus of the pancreas, the obstruction to the free passage of blood through the hardened part of the stomach, may give such an impetus in the surrounding vessels, as to produce the same sensation. May not the tumours* of various sizes and consistence which are occasionally found in the stomach growing from the villous coat, give rise to the same symptoms?

IV. The *Lacteal* and *Lymphatic Glands* about the root of the mesentery and in the lumbar region, are sometimes subject to sarcomatous and calculous enlargements; and the glands in the duplicature of the mesentery are also occasionally enormously enlarged. When this condition of them exist, other morbid changes take place besides those produced by an interruption to the passage of the fluid, which, in a state of health, they are destined to transmit. These enlargements frequently produce a pulsatory motion in the abdomen;—this may be in the lower part of the epigastric or umbilical regions, and is sometimes isochronous with the pulsation in the arteries of the extremities. Dr. Albers of Bremen, in examining the body of a sailor, who died of a tumour in the left hypochondrium, and extending to the right side of the umbilicus, attended with a loud pulsation, which he (the patient) took for his heart, observes: "I found in the middle of the mesentery a swelling, whose substance was of a nature particularly difficult to de-

* Vide Fab. de Hildan, Bonetus, Ruysch, Morgagni, Lieutaud, Haller, Baillie, Monro, and particularly, Portal's Cours d'Anat. Med. tom. 5, p. 193, 198.

scribe, and sixteen Parisian inches in circumference."*

The mechanical obstruction, which these tumours occasion to the transmission of blood in the trunks or branches of the surrounding arteries, will explain, as in the former affections, the pulsation in the epigastric or umbilical region.

V. That a pulsatory motion in the epigastric region should occur, unaccompanied with disease of any of the surrounding organs, is a curious and an interesting fact. It is one of the most extraordinary and inexplicable phenomena, attendant upon *Nervous Irritation.* Habits that are preternaturally susceptible of impressions—those whose nervous systems are morbidly circumstanced, are more especially the subjects of this distressing, and, for the most part, alarming affection. In hypochondriacal men and hysterical women, and particularly the former, this pulsation often occasions the greatest distress. As the stomach is an organ possessing the most important and extensive intercourse with the various parts of the system in health, so in a state of disease, do many morbid associations take refuge about the præcordia. That nervous irritation should here be concentrated, and develope itself in the form of a pulsation, is not more extraordinary than the phenomenon of blushing.

We have other local congestions of blood from

* See Dr. Albers' paper, Ed. Med. & Surg. Jour. vol. 3, p. 8.

mental impressions, and likewise induced by disease. This is the case in "certain inflammations, and very painful affections, the action of the blood-vessels of the affected part becomes very strong, without the heart or other vessels participating in it."* And why may not a particular determination of blood, to the descending aorta, or its abdominal ramifications shew itself in the form of a pulsation in epigastrio? The sudden manner of its attack† is a circumstance strongly favouring our hypothesis. This forms a striking and diagnostic distinction between it and an aneurism of the aorta or surrounding branches. Aneurisms for the most part, are of slow progress,—the pulsation becomes stronger and stronger, and the tumour more and more apparent; but the pulsation from nervous irritation is suddenly induced,‡ remains with very little variation for many years, and perhaps for life. Dr. Baillie informs us, that he saw a man, who had been labouring under this pulsation for twenty-five years when he consulted him, and that when it first attacked him, he had taken the opinion of Sir Cæsar Hawkins, Mr. Bloomfield, and Dr. Hunter; the two first told him it was an aneurism of the aorta, but Dr. Hunter saw so much peculiarity about it, that he ingenuously told him he did not know what it was.§

* Albers' Paper, p. 12. † Baillie's Paper.

‡ Vide Dr. Albers' Cases, Ed. Med. and Surg. Jour. Vol. 3, p. 8.

§ Dr. Baillie's Paper, Trans. Col. Phys. of London. Vol. 4.

This affection appears to be more commonly occurring about the middle period of life; but we have seen it in a delicate female, at the age of from twenty to twenty-five. The pulsation is more strongly marked in one case than in another, and in the same case it varies at different times of the day. We have observed it to be much more strong in the afternoon and evening, than in the morning. It could be very distinctly seen half across a large room, when beating the most violently, if the epigastrium was exposed. Dr. Baillie informs us, that he has not observed any thing peculiar in the pulse, and in the case we saw, there was no irregularity in the action of the arteries either of the superior or inferior extremities. In one patient, the pulsation in epigastrio, was isochronous with the heart and arteries; but Dr. Albers informs us, that "this is not always the case." As Dr. Baillie does not mention this circumstance particularly, it is probable, that the pulsation in all the cases which he saw, was in unison with the action of the heart and arteries. All the cases, described by Dr. Albers, are not properly such as arise from nervous irritation; one was owing to a large glandular swelling in the "middle of the mesentery." Among the legitimate cases which he has recorded as proceeding from what he properly calls "diseased nerves in the abdomen," is the following, and it is very curious.

A lady who had had several children, found this

pulsation in epigastrio so certain a sign of pregnancy that she confided to it in preference to all others. It was so violent at times, that her husband assured it could be distinctly heard. It usually left her entirely after the third month.*

Dr. Baillie had an opportunity of examining the bodies of two persons, who for a long time, had been affected with this pulsation, but died of other diseases. The first was found to have an ulcer in the stomach, without any other appearance of disease. The second died of typhus fever, but the stomach was in a good condition, as likewise the aorta, and its superior abdominal ramifications.

The ulcer of the stomach, in the first case, no doubt must have been carcinomatous,—which of itself, agreeably to our arrangement, (see section third,) would bring on the pulsation in epigastrio, by the difficulty with which the blood would be transmitted through the diseased part. This pulsation is so seldom owing to disease of the aorta or its abominal branches, that Dr. Baillie, in a long and extensive practice, has had but a single opportunity of seeing it proceed from that cause.

In confirmation of our opinion, that the pulsation in epigastrio attendant upon debilitated and irritable habits, or what we have termed nervous irritation, may exist without any organic affection, we may remark, that as anciently as the time of Hippocrates and Morgagni, and still more

* Dr. Albers' paper, p. 11.

lately by Albers and A. Burns, this affection has been attributed to a peculiar condition of the abdominal ramifications of the arteries—such a debility of them as produces aneurism.*

In one of Morgagni's cases, this is strikingly illustrated; there was great difficulty of breathing, and frequent turns of a sense of suffocation, with great pulsation of the heart; but the most remarkable was a sensation of throbbing through all the principal arteries of the body, and particularly those of the head, neck, and arms;—to adopt his own language—"their pulsations were large and vibrating." A very strong and regular pulsation was felt in epigastrio, it was so great, that Morgagni says, he never saw it exceeded—it was very visible externally. The dissection of this patient shewed no vestige of disease, either of the heart, large vessels, or abdominal viscera.

The general derangement of the nervous system, and particularly of the stomach, which attends this pulsation, makes it necessary to resort to tonic and invigorating treatment, both general and local. Whatever fortifies the nervous system, and braces the stomach, will be the most likely means of dissevering the chain of morbid associations. It is, however, consonant with the experience of Dr. Baillie and others, that this affection will continue for years when once esta-

* Morgagni.——"To diseased nerves in the abdomen." *Albers.*——"To some irregularity in the action of the abdominal vessels themselves." *Burns*, *p.* 272.

blished, and even for life, without undergoing any material change. "I am not acquainted," says this great physician, "with any means of curing this symptom or complaint."

From the very striking coincidence of symptoms in the case to which I have referred, and that recorded by Morgagni, perhaps it may not be improper to give it now, a little more in detail. The subject of it, is a female about twenty years of age, of a sanguine temperament, and very delicate and irritable habit. She is the mother of two children, and ever since her marriage, has laboured under great irritability of constitution. It would evince itself in occasional attacks of hysteria,—great difficulty of breathing, with a most frightful sense of suffocation,—great palpitation of the heart, and a throbbing sensation to a distressing degree in the arteries of the head, and superior extremities. After the birth of the second child, her recovery was very slow; and during her convalescence, she was suddenly attacked with a strong pulsation in the epigastrium. Upon attentive examination, it was found to be opposite the origin of the cœliac artery;—to be synchronous with the action of the heart, and arteries of the extremities;—to be seen pulsating externally;—to be unattended with a tumour about the aorta, or cœliac artery,—and to beat more violently in the afternoon and evening.

The sudden manner in which she was seized; its remaining stationary, as to the situation and de-

gree of pulsation, for now about twelve months, and being unaccompanied with any discoverable tumour, or disease of the surrounding organs, induce me to consider it, the *Pulsation in Epigastrio* from nervous irritation. With this view of the case, she was directed the use of various forms of tonic and nervine medicines, and to take regular and gentle exercise. Under this treatment, she evidently amended, with respect to the function of her stomach, the general irritability of her system, and the violence of the pulsation; but it was only transient. She firmly believes it to be an aneurism, and such is the anxiety and distress of her mind, (filled with a knowledge of the awful consequences, and that medicine will be of no avail,) that there is every reason to fear it will terminate in her death. When this shall have happened, I shall endeavour to determine the exact nature of her complaint by dissection.*

VI. It will hardly be believed *a priori*, that an *enlargement of the vena cava inferior* should occasion a pulsation in epigastrio; and instances of it, we presume are very rarely met with in practice, and we know that they are seldom recorded in medical writings. Indeed, it is so novel and extraordinary, that we find but one fact of this kind,

* After a short residence in the country, this lady became pregnant with her third child, and from this period her general health began to improve, the pulsation gradually lessened, and in a little time it had almost entirely left her. I visited her in town to-day, (Oct. 10th, 1817,) she is in excellent health, about five months gone, and not the least preternatural pulsation to be felt in epigastrio.

which is related by Senac: it was attended with a violent pulsation, as he states, in the epigastrium; and upon examining the body after death, the vena cava was found dilated, and as large as a man's arm. It is probable, that this enlargement of the vena cava, is generally connected with either a difficulty in the admission of the blood into the right auricle, or its transmission from the right ventricle through the lungs. In which case there will be a regurgitation of blood along the inferior cava; and more or less of an undulatory sensation, or motion discovered in epigastrio. "We have already," says Allan Burns, "seen some cases in which this had taken place; and that the pulsation is occasionally rendered more distinct, by the vein being at the same time dilated."* The vena portarum, when congested with blood from obstructions in the liver, has been known to communicate the same undulatory sensation as the vena cava. Dr. Pemberton, in his Practical Treatise on the Various Diseases of the Abdominal Viscera, when speaking of chronic obstructions in the liver, remarks: "There is also very commonly a sensation of fluttering at the pit of the stomach, which I imagine arises from the blood of the vena portarum being in like manner unable to find a free passage; it is therefore retained in that vein, and thus causes a sensation of undulation."† The pulsation, in these affections,

* Burns on the Heart, p. 265. † Pemberton, p. 38 and 39.

is of too "undulatory and diffused" a nature to be mistaken for aneurism. With very little attention they may easily be distinguished.

VII. We learn from the sixth section of causes, that a dilatation of the vena cava inferior, will occasion the Pulsation in Epigastrio, and also, that this enlargement may, or may not be accompanied with some diseases, or mal-conformation of the right side of the heart. Some disease or *mal-conformation of the tricuspid valves*, or a *preternatural dilation* or *enlargement of the heart* in general, or of the right side only, are known to give rise to the same phenomena. These cases produce so furious a pulsation in epigastrio, that most persons would not hesitate to pronounce, that there existed an aneurism of the cœliac artery or aorta. The pulsation in epigastrio, from an enlarged heart, will not be in perfect correspondence with the action of the heart itself. And when we, for a moment, recollect, that it is not the heart itself that we feel beating in epigastrio, but the left lobe of the liver driven suddenly forward by the violent action of the heart, we can understand, why the beating of the heart, and the tumour in epigastrio should not be simultaneous.

Allan Burns relates a case in which a violent pulsation in the epigastrium, was produced entirely by a dilated heart. No one, he thinks, who saw this case, ever doubted but that there was an aneurism of the cœliac artery. "The action of

the heart and the tumour, did not seem completely synchronous."

VIII. The *lungs* in some diseases are changed from their natural spongy, and light state, to a *condensed* substance, resembling very much the appearance of liver, insomuch, that they will sink in water. When the lower and acute margins, where they lay over the pericardium and in contact with the diaphragm, are from any cause converted into an inelastic and solid state, they will also give rise to a pulsation in the epigastric region. The beating is observed, by A. Burns, to be as violent about the scrobiculus cordis as from enlargement of the heart; and that it could be distinctly seen externally. The only case on record, as far as we know, is related by this accurate anatomist and pathologist; and in describing it, he says—"one who had never before seen a case of anomalous pulsation, would, on examining this patient, have had no doubt, but that either the trunk, or some of the branches of the cœliac artery, were aneurismal." The patient eventually sunk under an increase of disease of the chest, and the beating at the pit of the stomach; the latter, to use the words of the author, "was more distressing than I have almost ever seen occur from a dilated heart." No vestige of disease, upon dissection, was found of the heart or great vessels; the lungs had descended lower than common, between the pericardium and sternum, at

this place they did not collapse, but remained "erect," although they had contracted no adhesions to the pleura.

The stroke of the heart, against these solid and unyielding parts, would cause the impulse to be felt in epigastrio through the medium of the sternum or anterior surface of the left lobe of the liver. As the pulsation in the epigastric region, would be produced in the same manner as that from a diseased heart, may we not suppose as in that case, the two actions would not be in unison?

IX. Of all the causes of pulsation in epigastrio, we apprehend an *adhesion of the heart to the pericardium* is the most frequent. The union of this capsule to the heart, may be the effect either of acute or chronic inflammation; the symptoms which characterize the former, are those generally attendant upon inflammation about the thorax; but with the latter, they are exceedingly ambiguous and obscure. The term chronic, is very improperly applied to this inflammation, though it has obtained the sanction of the best practical writers. It is not, they admit, of long duration, but finishes its course in a "few weeks, and sometimes even in a few days." The only ground for this epithet, appears to be the mysterious or concealed nature of the affection; it does not convey to the most sagacious and experienced practitioner a single symptom diagnostic of the nature of

the malady,—" except in so far as it produces adhesion of two contiguous surfaces, and often a secretion of a flaky fluid, [it] presents not a single feature belonging to inflammation."

The experienced Dr. Ferriar, in speaking of the obscure nature of this affection, asks whether we may not keep the probability of chronic inflammation in view, " when there is much pain in the lower part of the abdomen, without any affection of the excretions ?"—" From its insensible attack, from its secret progress, arises, in most cases, a difficulty often insurmountable, in the diagnostic of this inflammation. We know not by what signs to distinguish its attack, or what symptoms accompany its progress."*

This disease is so exceedingly vague and irregular, that if a patient were to be examined by a person, who had had many opportunities of witnessing the effects of it, upon dissection, and also of contemplating the attendant symptoms, he would perhaps, sooner suspect a disease of a remote organ, than an inflammation of the heart or its capsule, in any of its various forms or numerous complications. It is truly, as an eminent author observes, " one of the most deceitful diseases of the heart; often making its appearance without any obvious cause, and carrying off the patient before it is ascertained whether this organ

* Essay on Diseases of the Heart, p. 48.

be really affected."* There are few cases presented to the practitioner, in which he has more to lament the imperfection of diagnosis, than in this, and certainly none which impress on our minds more strongly the solemn lesson, that the most undeviating attention ought to be bestowed on them, in order to discharge the highly important and responsible duties of actual practice. Indeed it may truly be said, that "he who can overlook the apparent symptoms, and turn his attention to the distant disease, must have seen and lost a number of cases."

Most of the writers on morbid anatomy, from the days of Ruysch and Morgagni, to the present time, have related cases of adhesion of the pericardium to the heart. It is generally remarked, that the appearances exhibited upon the dissection of those who have died with this disease, bear little or no proportion to what had been anticipated, from the amount or urgency of the pre-existing symptoms. A more formidable disease of the heart or aorta is looked for in these cases, from the inordinate pulsation about the chest. In several cases of this disease, which we have known, after a continuance of the violent and jarring action of the heart for a longer or shorter time, hydropic effusions have taken place in the cavities of the

* It cannot be surprising, that so little should be known of this disease, when we see it shew itself in the form of an affection of the bladder, uterine system, or pain in the groin, as related by Lieutaud in his Historia Anatomica Medica.

chest and cellular substance of the extremities, with which the life of the patient has terminated. These watery collections make a character among the morbid phenomena which accompany this adhesion, as recorded by Portal in his "Cours. d'Anatomie Médicale." His words are, "*Ces malades avoient le visage, les mains, et les pieds œdemateux, ils avoient éprouvé des maladies inflammatoires de la poitrine, on a reconnu dans quelques-uns d'eux un vice scrophuleux.*"*

In two instances, in which we have lately had the advantage of dissection, the adhesion took place so insidiously, that it did not produce any conspicuous pain in the affected part. One case was in a man aged about twenty-eight, who while an apprentice boy, had his chest violently injured by his master jumping on it in a fit of anger, while correcting him for some misdemeanor. Some months after this injury, without any particular pain or affection of the thorax having preceded, he observed his heart to beat more violently than common. This continued to increase for several years, until it arrived to so great a degree, that it could not only be seen but heard some distance. Symptoms of a watery accumulation in the chest supervened, followed by a distention of the cellular membrane of the extremities, and tedious and distressing suffering completed the fatal catastrophe. The other was likewise a young man,

* Portal, Cours d'Anat. Med. Tom. 3, p. 25.

about nineteen years of age, who after several severe attacks of acute rheumatism, was observed to have a great throbbing about the chest in the region of the heart. This gradually increased, until it became very violent and distressing, accompanied with great difficulty of breathing, emaciation, and an anasarcous affection of the extremities, under which he eventually sunk.

Both these cases were attended with a strong pulsation in epigastrio, insomuch, that an enlargement of the heart, or an aneurismatic state of the thoracic aorta, was supposed to exist. No organic affection was, however, discovered upon dissection, excepting a general adhesion of the pericardium to the surface of the heart. So close and intimate was the union of this capsule, that it could not with the most careful dissection be separated from the parietes of the heart; indeed, upon the first examination, the pericardium appeared to be altogether wanting. A large effusion of water was found in the lateral cavities of the thorax, and the extremities were likewise œdematous.

The pulsation in epigastrio was in perfect correspondence with the action of the heart, and likewise the arteries of the extremities. It is no way difficult to explain this fact, when we advert to the connection which exists between the diaphragm and pericardium in a natural state; and when we consider that the latter from disease becomes firmly glued to the heart, so that these

parts all move together, or *en masse*. The heart is now so encumbered by the pericardium, that this membrane no longer regulates its degree of distention, for it has actually become a part of it. Every contraction of the heart now pulls upon the pericardium, and this again upon the diaphragm, in such a manner, that with the connection of the liver to the diaphragm, the pulsation of the heart will be felt in the epigastrium, and will be synchronous with the action of the heart.

The present communication is to be considered as an attempt to bring into notice some of the causes of an extraordinary and frequently anomalous affection; and must be viewed only as an outline or beginning, to be filled up by future observation and research. To the writer it will serve as a basis or guide in the further prosecution of his inquiries, into this obscure and interesting subject.

CASE

OF

CAROTID ANEURISM,

CURED BY AN OPERATION.

By Wright Post, M. D.

Professor of Anatomy in the University of the State of New-York, &c.

COMMUNICATED

BY VALENTINE MOTT, M. D.

Fellow of the Society.

Read the 2d of September, 1817.

Lydia Hubbard, aged 32 years, was admitted into the New-York Hospital, November 26th, 1816, with an Aneurism of the right Carotid Artery, about the size of a hen's egg, extending from the angle of the lower jaw to the lower part of the thyroid cartilage.

She first perceived the tumour about four years ago. It was then about the size of a nutmeg, situated immediately behind the angle of the jaw, and evidently pulsated. Its growth at first was very slow; but lately it had increased rapidly, and produced a painful throbbing in the head, which

was considerably increased on making any exertion. She had shown it to several physicians in the country, none of whom appeared to understand the nature of the disease, although she always remarked to them its pulsation. They considered it an ordinary enlargement of one of the lymphatic glands of the neck. Dr. White of Hudson, first declared its true nature, and referred her to me.

On the day after her admission into the Hospital, the surgeons, in consultation, agreed that the operation of tying the artery between the heart and the tumour, afforded the only reasonable prospect of cure; and the patient being willing to undergo any operation that was deemed proper, the following day was assigned for its performance;—and preparatory to that measure her bowels were freely opened by sulphate of soda.

On the morning of the operation, Nov. 28th, she appeared perfectly tranquil;—her pulse was 73, and her composure at this time could only be equalled by the fortitude which she evinced while under the knife.

I performed the operation at 12 o'clock. An incision was made three inches in length on the inner edge of the sterno-mastoid muscle, from the lower part of the tumour to within a quarter of an inch of the clavicle. The dissection was continued between the mastoid and sterno-thyroid muscles down to the omo-hyoideus. This part of the operation was in a degree embarrassed by the di-

vision of two or three small arteries; the blood from which obscured the parts, and which it became necessary to restrain by ligature. The sheath of the vessels was now laid bare, and a sufficient exposure of it being rendered difficult by the omo-hyoideus, this muscle was divided. Care was also necessary to avoid the descendens-noni, which ran over the anterior surface of the sheath. The sheath was now laid open, and the artery detached so as to allow a bent probe, carrying a double ligature, to pass under it. The lower ligature being tied, a further separation of the artery was made in order to the application of the upper ligature about three quarters of an inch above the lower one, and then the artery was divided between the two. Nothing remained now but to dress the wound; which was done by bringing the edges into contact, and retaining them in this situation by adhesive straps, leaving the ends of the ligatures out of the wound, and covering the whole lightly with lint.

At the moment of applying the first ligature, the size of the tumour was considerably diminished, and its pulsations became very weak. The pulse at the wrist became fuller and more frequent, and the cheek of the affected side lost its warmth and bright colour. She experienced a sensation of numbness through the head, and this was succeeded in a few moments, by pain; which, however, was of short duration.

3, P. M. Complains of pain in the right side of the head, and feels great oppression at the stomach. The right side of the face is colder by two degrees than the left;—her feet are also cold.

6, P. M. The pain in her head less;—the sense of oppression at the stomach is relieved, but is succeeded by nausea; to allay which, a little mint-water was ordered;—an additional blanket has restored the warmth of her feet.

8, P. M. Pulse 82. Took the mint water, but it was soon rejected; after which, she felt more comfortable; has no pain in the head, but is very restless.

10, P. M. Has again vomited;—the sickness continues, but not in as great a degree.

Nov. 29.—3, A. M. Has again vomited; a distressing nausea continues;—has several times been troubled with hiccough; pulse 82;—she was directed to take tinct. opii. gtt. xl. in aq. menth. ℥j.

7, A. M. Has vomited once or twice since the anodyne, but afterwards enjoyed some refreshing sleep. A slight degree of nausea continues;—no return of hiccough—pulse 84.

9, A. M. Pulse 84, and full, but soft—skin moist; the left cheek is flushed and warmer than the other by several degrees;—has very little nausea, but complains of a sense of heaviness in the head.

3, P. M. The patient is perfectly tranquil—pulse 85, soft and regular; skin cool and moist;—has no nausea nor pain in the head.

10, P. M. Has had a refreshing sleep of about an hour—pulse calm—skin cool.

Nov. 30.—7, A. M. Is revived by a repose of several hours—pulse 82;—complains of soreness in the wound, and in the throat in swallowing—no stool since the operation;—was directed to take a solution of sup. tart. potassæ in barley water, until one or two evacuations be produced.

10, P. M. Pulse 96—patient is calm;—has less pain in the wound and throat.

Dec. 1.—Pulse 88—slept but one hour during the night;—is relieved by the operation of the cathartic.

2d—Enjoyed a better night's rest than she had since the operation—pulse 85;—has less pain in deglutition, and none in the wound.

3d—Slept as well as in ordinary health—pulse 78;—has very little soreness in swallowing.

4th—Rested tolerably well during the night; some appearance of discharge from the wound;—has no pain in the throat.

5th—Pulse 78—removed the dressing; that part of the wound above the ligature is united;—the discharge of matter is trifling.

6th—Experiences no uneasy sensations;—the ligatures, with which the small arteries were tied, came away.

13th—Says she feels better, and that her "head is stronger" than it has been for the last year.

14th—The lower ligature came away.

18th—The upper ligature cast off. Nothing oc-

curred after this, worthy of notice, till the 1st of January, 1817; when she was discharged from the Hospital—the wound entirely healed.

At this period the tumour was little more than one fourth as large as it was on the morning of the operation. An indistinct pulsation could yet be felt in it; but whether in the tumour itself, or whether it arose from the impulse of the surround-vessels, it was difficult to determine.

CASES

OF

A DISEASE

RESEMBLING SYPHILIS,

WITH REMARKS.

BY JAMES C. BLISS, M. D.

Fellow of the Society.

Read the 2d of September, 1817.

Any facts connected with a disease of frequent occurrence, are important, and deserve the consideration of the medical practitioner. For this reason I have been led to submit the following cases to the society, presuming that they will not be altogether uninteresting.

I was led to notice with more than common attention, in the early part of the year 1814, some cases of disease of the genital organs of unusual form, which were presented in the practice of the New-York Hospital. My attention would not, perhaps, have been so particularly directed to them, if one or two cases only had fallen under my observation; but the circumstance of a considerable number having occurred about the same time, induced me to give more particular attention

to the distinctive character of their symptoms, their progress, and the effect of remedies.

The first case of this desase which attracted notice, was in the year 1814. The subject of it was a female of apparently good habit, aged about 26 years. She had been labouring under the disease about two weeks previous to her reception into the Hospital. At the time of her admission, she had an ulcer on the right labium, about the size of a twenty-five cent piece. The surface was covered with a slough of a reddish brown colour, and there was also a discharge from it of a thin dark coloured matter.

The general aspect of the ulcer was so peculiar, as to distinguish it from chancre ordinarily met with in practice. With the local affection, the patient had fever,—complained of much debility, although able to walk—had tremour of the limbs, and her intellectual faculties were slightly confused.

In the treatment of this patient, an invigorating plan was adopted; wine, bark, and opium, were exhibited conjoined with nourishing diet; but notwithstanding this treatment, the sloughing continued to progress, and the constitutional irritation became greater, as was evidenced by low delirium, increase of fever, and great prostration of strength. On the fourth day after her admission into the Hospital, the mons veneris, and labia, had sloughed off, so as to expose the pubis: the ex-

tensive and unsightly diseased surface was still black, and intolerably offensive.

On the succeeding day the patient died.

In the early part of the year 1814, a female was admitted, of a thin spare habit, aged 36 years. She had been the mistress of a brothel in the upper part of the city. At the time of her admission she had been affected with the disease about three weeks; and I could not learn that she had been using any remedies. When she came to the Hospital, her pulse was small and frequent; the skin was nearly natural, and the tongue was coated with an ash coloured fur. She was also slightly comatose, but when her attention was fixed, would answer questions with tolerable distinctness. The labia were studded with several small painful ulcers; the surfaces of which, were covered with spongy sloughs, of a colour approaching brick-dust, and there was a dark coloured bloody discharge from them.—The appearance of the ulcers and the constitutional symptoms, were so strikingly similar to those of the preceding case, that I was at the time, induced to express a belief, that the disease would prove fatal. The patient was put upon the liberal use of bark, wine, and opium, and had a yeast poultice, with the addition of charcoal, applied to the diseased part.

On the second day, it was evident that the disease was progressing; the sloughing had extended so far as to involve the whole of the inside of the la-

bia pudendi, and there was a profuse discharge of a bloody ichor. But in this state, the patient was able to get out of bed and walk. When in bed she lay in a muttering delirium; but was readily roused, if spoken to in a loud tone of voice.

On the third day the disease was still progressing, and the system at large, partook more fully of its effects.

On the fourth day the patient died. Her death was preceded by the symptoms which usually attend extensive mortification.

Soon after the death of the above-mentioned patient, a female of plethoric habit of body, and aged about 25 years, was admitted. She appeared to be in an advanced stage of fever; the pulse was remarkably small and frequent; the skin not materially heated, and in a moist state; the tongue slightly coated, and of a brown colour. The intellectual faculties were so much disturbed as to render it impossible to gather any previous history of her disease.—Presuming it to be a case of fever, in which typhoid symptoms had supervened, she was admitted on the medical side of the house, and treated accordingly. Wine was given to her, with other tonic and stimulant remedies, with freedom. In the evening of the day of her admission, she became violently delirious; got out of bed, and excited, by her actions, considerable alarm among the patients in the ward. The second day she lay in a low delirium, amounting almost

to insensibility, with constant moaning, and could not be roused so as to give signs of intelligence by loud speaking.

The third day the patient died, and it was not till then, that it was discovered, that the whole of the external organs of generation were sphacelated, exhibiting an appearance similar to the preceding cases.

S. B. a black woman, aged 20 years, was admitted the 14th of October, with this form of disease. She had sphacelus of the right labium pudendi, and a thin dark coloured discharge from the part; and was also affected with fever. She was of a full habit of body, and appeared to possess an uncommonly vigorous constitution. The patient supposed she had been exposed to venereal infection, and had been affected with the disease two weeks previous to her coming to the Hospital.

After her reception into the Hospital, she was directed wine, bark, ale, and opium, and to have a fermenting poultice applied to the diseased part. The fever afterwards increased, and was attended with delirium, and great nervous irritation.

The diseased part sloughed off about six days after her admission; the ulcer began to heal, and her general health improved rapidly. Before the ulcer had completely healed, she took a few doses of mercury, but not sufficient to affect the consti-

tution. She was discharged from the house apparently free from all disease.

Hannah, a black woman, aged 28 years, was admitted the 28th of October. She had a deep black sloughy ulcer, extending from the right groin down to the inside of the thigh, involving a part of the labium of that side. She was considerably debilitated, had fever, tremour of the limbs, and the tongue was slightly coated and dark coloured. Her mind was considerably shattered, and she was so deaf, that she could not be made to hear, unless spoken to in a loud tone of voice. Immediately before her admission she had been a servant in a house of ill-fame, had been diseased about three weeks, and taken no remedies.

She was put upon the use of powerful tonic and stimulating remedies; the yeast poultice was applied to the ulcer, and when it was changed, the diseased part was washed with spirits.

The patient lay in a muttering delirium with occasional moaning, the greater part of the time, for a week after she came to the Hospital. After that period, the sloughy surface of the ulcer cleaned off, and the granulations exhibited a tolerably healthy appearance. Her fever disappeared; at the same time her appetite returned; and her strength was so far restored as to enable her to get out of bed, and even set up for a short time without inconvenience. But these flattering symptoms did not long continue, the aspect of the ul-

cer changed, its surface became black; her appetite failed, and her strength began to decline;—fever supervened, which appeared symptomatic of the local affection;—extensive sloughs formed over the trochanter major of each side and over the sacrum, although she had been confined but a short time to a horizontal posture. Her sufferings were now great in the extreme, and could be mitigated only by large and frequently repeated anodynes. Although remedies appeared of no avail, we still persisted in the use of tonic and stimulant medicines.

After this period, sloughs formed on her shoulders, and other parts of the body, and the fetor from her ulcers became so intolerably offensive, that she could scarcely be approached. She languished in this state for nearly three weeks, and died on the 5th of September.

Three or four other instances* of this disease might be detailed here; but it is believed the above will serve to illustrate its character.

These cases exhibit a train of symptoms which are very remarkable, and in some respects, peculiar; and it is difficult to refer them to any form of venereal disease described in our books. They appear also, in a few particulars, to differ from any other disease with which we are acquainted, depending on infection by animal secretion. The

* In these the disease progressed with less quickness than in the cases we have mentioned, and in neither of them was it fatal.

sloughing phagedena of Dr. Adams, and the sloughing sores of Mr. Abernethy, have the greatest analogy; and although they appear to differ, yet we shall hereafter endeavour to show, that they were the same disease, originating from the same peculiar virus.

That there are diseases of specific character, propagated in the same manner as syphilis, and yet differing essentially from the ordinary form of that disorder, cannot be reasonably doubted by those who have examined the facts on this subject, contained in the writings of Mr. Hunter, Mr. Abernethy, Dr. Adams, and other authors. The infection which gives rise to these diseases is generated in the human body, and, at times, produces complaints of such extreme virulence, as to render them altogether uncontroulable by any remedies with which we are acquainted.

The question naturally arises,—Are not these diseases truly venereal, having their character changed by accidental causes? To this, we reply, that they occur in every variety of constitution, and under circumstances altogether different. To an attentive observer, there will appear, at the commencement, an evident difference in the symtoms; and in the progress, a still more striking dissimilarity occurs between them and those of true syphilis.

It is certain, that Celsus was acquainted with some of these diseases, as they appear on the genital organs; and Dr. Adams has laboured with

considerable success, to prove that he was also familiar with their constitutional effects. We observe again, that a disease truly venereal cannot be cured without the use of a remedy, which will produce an action in the system, sufficient to overcome the syphilitic irritation, and eliminate the virus from the body; while on the other hand, these diseases do frequently disappear without the use of mercury, (the remedy commonly employed,) it, at times, not only being useless, but in the highest degree noxious.

Mr. Abernethy, whose accuracy and discernment is much to be admired, has betowed particular attention on this subject; yet he is led to rely on no other circumstance than that "the constitutional symptoms of syphilis are in general constantly progressive, and never disappear without remedies, and that when mercury is given to the extent of affecting the constitution sufficiently, they are generally relieved." There is considerable embarrassment attending this distinction of Mr. Abernethy, and it is doubtless liable to some objections, but it will probably, on the whole, be found to accord with the observations of the most experienced in the profession. But it is important, that we should be made acquainted with some other discriminating characteristics of these diseases; and it appears to me, that there are symptoms in the primary affections, and others developed in the progress of the constitutional complaints, equally deserving consideration, with the

distinction made by Mr. Abernethy. Some of these symptoms are strikingly exhibited in cases detailed by Mr. Abernethy himself, under the heads of *Constitutional origin of Pseudo syphilitic diseases*, *Burrowing sores*, *Sloughing sores*, and *Of sores which become indurated in their circumference.* Mr. Hunter has also related a number of cases, which, at their commencement, and in their progress, were sufficiently peculiar to distinguish them from syphilis, without resorting to the test Mr. Abernethy has given ;—and indeed our books abound with examples of this kind.*

I have said the above cases appear to differ from the sloughing phagedena of Dr. Adams. In some respects they certainly do ; but it is not improbable, that they may have been the same disease, modified by particular circumstances. Dr. Adams says, *(page* 45, *2d edition,)* that "we have no accounts transmitted of sloughing or phagedenic ulcers in the vagina, so that if they do occur, it must be rare." In a note he adds, that "Mr. Blair, at the Lock, had lately shown him a gangrenous sore in a *woman*, which had proved infectious, and had resisted mercury."

The subjects of disease, in the instances we have recited, were all females, and their habits were depraved and abandoned. Perhaps females,

* See cases of disease communicated by nursing and by transplanting teeth.

from the greater irritability of their constitutions, are less capable of resisting the effects of the poison, than men. The loose habits of our patients, also, might have rendered them more susceptible of its influence. Again, the structure of the female organs of generation may be more particularly favourable to the ravages of the local disease, which must necessarily increase the severity of the constitutional symptoms.

In all our cases, there was great irritation of the system, evidenced in the fever, delirium, and subsequent prostration of strength. Most of the cases of sloughing phagedena, which are distinctly related by authors, have also been attended with fever,* and Mr. Turner states, in a case he gives, that the disease was accompanied with delirium.

Mr. B. Bell, evidently has this disease in view, when in speaking of the rapid progress of some chancres, he states, that this circumstance has generally been attributed to peculiarity of constitution. But he gives it as his opinion, that in some instances, it depends upon the *nature* of the *matter* itself. He forms this opinion, from chancres of this kind being more frequently met with at one time, than at another, and observing them at the same time in different people, who received the infection from the same woman.

* See Adams on morbid poison. Medical Journal, Vol. 3, page 201, and Vol. 5, 498. Edinburgh Medical Essays. Hunter on the Venereal Disease. Medical Transactions, Vol. 3. page 325.

The form of disease with which his patients were attacked, seems to have been very similar to that which affected ours. The resemblance is particularly striking in respect to the rapid manner the disorders progressed in both instances. Mr. Bell, states,* that in all his cases, "the chancres appeared early, and made such rapid progress, that very troublesome hemorrhages occurred in the space of three or four days from their first appearance."† The dissimilarity is not greater, than we should naturally expect from the difference in constitution of the two sexes, and the peculiar habits of our patients; and hence, we conclude, that they were produced by the same peculiar poison.

Dr. Adams, in inquiring into the origin of the

* Treatise on Gonorrhœa Virulenta and the Lues Venerea. Vol. 2, p. 13, Phil. Edt.

† In the winter of 1814, there were two men in the N. Y. Hospital, who had been infected about the same time, and by the same woman. The disease in both partook strongly of the character of the sloughing phagedena. Both had sloughy ulcers, about the size of a shilling, and had been affected with the disorder about eight or ten days previous to their coming to the Hospital. In one, there was considerable inflammation surrounding the ulcer, and which had extended to the prepuce when he was admitted; this increased afterwards, and was followed by sloughing of the prepuce and body of the penis to the extent of about two inches. During the process of sloughing, there was repeated hemorrhage from the penis, which was with difficulty restrained. This patient had fever, attended with heat of skin, foul dark coloured tongue, considerable nervous irritation and debility. He was treated with stimulant and tonic remedies, till the sloughs were separated and his general health restored, and afterwards took mercury.

His companion was, from the first, treated with mercury, and after the sloughy surface cleaned off, the ulcer healed without the occurrence of any remarkable circumstance.

poison which produces these diseases, remarks, "that, so far as we know, it may be communicated by a person in perfect health." He also hints, that its virulence may be owing to a previous breach in the external covering of the part infected.* This opinion receives weight in my mind, from the fact, that chancres which occur on the frænum of the prepuce, where the skin has been ruptured in coition, are unusually foul, and very rapid in their progress, till checked by mercury.

The cases we have given, afford but few facts by which a conclusion can be drawn, with respect to the best mode of treating this form of disease. A decided and persevering use of invigorating remedies, appeared necessary in our cases; and the symptoms were such as to prevent the use of mercury.

If the use of mercury is ever admissible in the treatment of this disorder, it must be in cases where the constitutional irritation is not very considerable or where, if it has been considerable, it has afterwards in a great measure subsided. It is a remedy which ought always to be used with caution, as imprudence in this particular, has frequently done irreparable injury to the patient. The use of other remedies, commonly denominated anti-syphilitic, will doubtless, at times, be proper, particularly

* Dr. Adams cites *tooth cases*: he also instances, ulcers and other more terrible consequences, which arise from dissecting dead bodies when the skin of the hands and fingers is abraded—See a Case detailed at length, p. 32, 2d Ed.

the decoction of the woods. Tonic medicines will, also, in most instances, be useful; such as the mineral acids, bark, wine, and nutritious diet.

It is much to be wished, that some one whose field for observation is extensive, would collect and embody the various facts connected with this obscure subject; and arrange the different affections under proper and distinct heads, so that they may be easily recognised. Perhaps the observations of a single individual would not be sufficiently extensive for this purpose; hence every recorded fact which illustrates these disorders, has a peculiar importance attached to it. A great difficulty attends all our inquiries on this subject, which arises, in a great measure, from these diseases being treated almost indiscriminately by mercury. Some cases are cured by the use of this potent medicine, whilst others are aggravated, or have their character so changed, that it is difficult to determine whether the disease, which is kept up in the system, is the result of the original infection, or the remedy employed for its removal. Another serious obstacle to our researches, is the fact, that diseases truly syphilitic frequently remain for a long time obstinately unyielding to mercury.

CASE

OF

BRACHIAL ANEURISM,

CURED BY

TYING THE SUBCLAVIAN ARTERY

ABOVE THE CLAVICLE,

BY WRIGHT POST, M. D.

Professor of Anatomy in the University of the State of New-York, &c.

COMMUNICATED BY JAMES C. BLISS, M. D.

Fellow of the Society.

Read the 17th of October, 1817.

Mr. J. M. aged 27 years, came to this city on the 7th September, 1817, for the purpose of obtaining my advice in relation to an aneurism of the left arm. This gentleman had been three or four years afflicted with the complicated effects of lues venerea, and of the remedies which had been employed for its cure; and at this time, there were three extremely ill-conditioned ulcers on his left fore-arm. The tumour was situated at the upper and inner part of the arm; and was first discovered about three weeks before he came to New-York. At this time, according to our patient's account, it was about the size of a pullet's

egg, attended by a pulsation, and an obtuse pain, which extended to the limb below.

About fifteen days after he observed the swelling, while in the act of lifting a package of goods from a shelf in his store, he was seized with a violent pain in the tumour, which lasted about an hour, and gradually subsided. After this he observed the tumour to increase in size with considerable rapidity.

On the 6th of September, he was again affected with violent pain in the tumour and limb, which induced him to request the advice of Dr. Gilbert, of New-Haven, where our patient resided. The tumour at this time was larger than a goose-egg, *and its base extended into the axilla.* There were also two or three dark spots on the surface near the apex, and the integuments, at the most prominent part, appeared very thin.

The nature and progress of the disease having been ascertained, Dr. Gilbert advised the patient to come immediately to New-York, for my opinion as to the means proper to be adopted for his relief: and as the appearances justified an apprehension that the tumour might soon burst, a due support was given to it by adhesive plaster, and Dr. G. accompanied him to town.

I saw the patient on the 7th, soon after his arrival in the city. The tumour at this time was extremely tense, and the pulsation strong in every part of it, particularly at the apex. The discolouration, which was very evident the day before, had, in a great measure, disappeared.

The importance of the case rendered it proper that some other gentlemen of the faculty should see it with me; and, accordingly, Drs. Kissam, Borrowe, and Mott, were requested to meet me, in consultation, the following morning. At this visit we were informed, that our patient had experienced, during the preceding night, extreme pain in the tumour and whole arm—and which still continued with little or no mitigation, notwithstanding he had taken near four grains of opium. The tumour had increased very considerably since the day before; but the pulsation was so much weakened, as to be perceived only by the nicest examination. The lower part of the limb had now, also, become considerably swelled.

The progress of the disease rendered it necessary that very prompt measures should be adopted; and that of tying the artery above the tumour was thought the most eligible;—and one o'clock was the hour fixed upon for performing the operation.

The high situation of the tumour on the arm, and the extension of its base into the axilla, precluded the operation at this part;—it was therefore determined to tie the artery above the clavicle.

An incision, commencing at the external edge of the tendon of the mastoid muscle, was carried through the integuments about three inches in length, in a direction deviating a little from a parallel line with the clavicle. This divided the external jugular vein, the bleeding from which re-

quired a ligature for its suppression; and in proceeding with the operation, three or four arterial branches were cut, which it was also necessary to secure. The subclavian artery was then sought for immediately external to the scaleni muscles, and was easily laid bare. Passing over the artery at this place, and in contact with it, were three considerable branches of nerves, running downwards, towards the chest, from the plexus above. These were separated, and the ligature passed under the artery with great facility, by an instrument well adapted to this purpose, invented by Drs. Parish, Hartshorn, and Hewson, of Philadelphia. On tying the ligature, all pulsation ceased in the limb. The edges of the wound were now brought together, and secured by suture and adhesive straps, and a light covering of lint finished the dressing.

The patient complaining of great pain in the whole course of the arm, 30 drops of laudanum were given to him, and he was put to bed. At the end of one hour, the pain continuing violent, 40 drops more of laudanum were administered; and this proving insufficient for his relief, an additional 40 drops were taken at the end of another hour.

5 o'clock, P. M. The pain is in a great measure relieved. No sensible diminution in the tension of the tumour. He experiences a sensation of numbness through the whole arm—pulse 87. The temperature of the limb in no degree dimi-

nished; on the contrary, it seems rather greater than in the other arm, which probably arises from the covering of flannel.

9, P. M. Complains of very little pain; pulse considerably excited; skin hot and moist. The limb above the elbow has its natural sensibility.

12, P. M. He is free from pain; but the fever is increased; pulse 110 with considerable fulness; skin moist, and he is inclined to sleep.

Sept. 9th—7, A. M. Has passed a comfortable night; pulse 100 and soft; perspiration free; the tumour less tense than last evening, but is considerably inflamed; and there are two livid spots at and near the apex, about the size of a shilling. Ordered a saline purgative, and to have a dilute spiritous lotion applied to the inflamed surface.

7 P. M. The tension of the tumour still less, and the inflammation on the surface is diminished; the livid spots continue; the swelling of the limb below the tumour has almost subsided; the bowels have been evacuated three times by the salts; a gentle perspiration has continued throughout the day;—pulse 90 and soft.

Sept. 10th—7 A. M. The patient has rested well through the night; pulse 94; the tumour is more flaccid; the livid spots have a darker hue, and the apex of the tumour is more prominent and soft. A soft bolster was placed under the tumour, so as to afford a moderate support.

Sept. 11th—7 A. M. Has slept most of the night; the tumour has diminished about one fifth,

and is less inflamed and livid—pulse 96. He expresses a desire for food, and has permission to take a little chicken soup. In the evening of this day, was a little more excited and directed to discontinue his animal food.

Sept. 12th—10. A. M. The patient had a good night's rest; pulse 80; skin of a natural temperature. A slight pulsation can be felt at the wrist; the tumour diminishing, but seems ready to burst at the apex, where the contents appear to be confined by a covering not thicker than cuticle. The inflammation of the integuments has disappeared. Ordered to have an adhesive plaster applied over the whole surface of the tumour, for the purpose of support; and to have his bowels opened by a repetition of his cathartic.

13th—The day passed comfortably;—but in the evening there was a sudden gush of a small quantity of blood from the wound; which, however, soon spontaneously ceased flowing.

14th—The patient quite tranquil; has a little bloody discharge from the wound; the ulcers on the fore arm healing rapidly.

15th—The dressings were, for the first time, removed this morning, after having been softened by emollient poultices the preceding night. Adhesion of the sides of the wound had taken place to a considerable extent. The tumour has decreased about one half.

17th—In the afternoon, the aneurismal tumour burst; and about three ounces of dark coagulated

blood was discharged. A little lint was applied over the opening, and retained by an adhesive strap.

18th—The wound was again dressed—suppuration free, and the granulations tolerably healthy. The patient has complained of pain in the wrist and hand for several days, which has been particularly severe at night.

20th—The dressings were removed from the tumour, and about four ounces of grumous blood discharged from the aneurismal sac, which occasioned an entire disappearance of swelling about the part. The wound looking rather pale, and the discharge thin and discoloured, an infusion of bark was ordered, which was discontinued the following day, on account of increased action and fullness of the pulse.

The patient, after this, had a febrile paroxysm daily, till the 24th; which went off every evening by perspiration. At this time, the wound had improved in appearance; the granulations were florid, and the discharge more healthy.

26th—On dressing the wound this morning, the ligature with which the subclavian artery had been tied, was found cast off, and lying upon the surface of the granulations.

30th—The wound is now nearly healed; the tumour has entirely disappeared; but there is a slight ulceration in the integuments where the blood was discharged; and a small oozing of serious matter, coloured in some degree, probably by a small

quantity of blood in the sac, which is not yet entirely obliterated. The ulcers on the fore-arm have all healed, except one, which is very small. The wrist and hand are slightly numb, and pain is felt in them, more especially at night. The pulsation in the artery at the wrist can be distinctly felt; but the strength of it has not perceptibly increased, for some time past. The patient's general health is fast improving; and he is able to sit up a considerable part of the day, and walk in his room.

Oct. 11th—The wound is entirely healed;—the patient's general health is perfectly good;—the pain in his hand is now confined to the extremities of the fingers, and is daily lessening;—the power of using the arm is increasing every day.

16th—The patient having no complaint, except a little occasional pain in the fingers, and a small superficial sinus at the part where the aneurismal tumour ruptured, and being desirous to return to the place of his residence, (New-Haven,) it was thought unnecessary to detain him any longer, and he accordingly left the city.

A

REMARKABLE CASE

OF

DEVOTIONAL SOMNIUM.

BY ANSEL W. IVES, M. D.

Fellow of the Society.

Read the 17th of October, 1817.

The singular case of Rachel Baker, the subject of the following remarks, has already excited the wonder and admiration of our city. Until, from repetition, the novelty of her nightly devotions was lost, it was the popular topic of conversation with the learned and unlearned.

From the marvellous reports of some who had witnessed her exercises, before they were noticed in print, she was revered by the credulous as a divine prodigy, and derided by the sceptic as a vile impostor. Nor were these discordant opinions reconciled, nor the minds of the inquisitive satisfied by the partial or exaggerated accounts which were circulated in the newspapers of the day. To correct misrepresentations, and to appease the turbulent curiosity of the populace, it was necessary that a phenomenon, apparently so mysterious,

should be thoroughly investigated. Besides, it was the anxious desire of Miss Baker and her friends, that her case might be submitted to medical inquiry; and, if practicable, that her peculiar mental affection might be removed. Accordingly, soon after she came to New-York, a learned and judicious council of physicians was called;—the most satisfactory testimony was produced, relative to her previous character, deportment, and habits of life; and her singular case became a fair subject of medical and metaphysical inquiry. The progress and result of that investigation are already before the public;* but these preliminary remarks, are necessarily introduced as being essentially connected with the subsequent history and termination of a case highly important to metaphysical and medical science.

The following statement of facts, relative to the history of Miss Baker, was principally collected from a letter, communicated by the Rev. David Rathbone, of Scipio, to Dr. John H. Douglass, of this city, and published in the volume to which I have alluded.

Rachel Baker, the daughter of Ezekiel and

* See "Devotional Somnium, or a collection of prayers and exhortations, uttered by Miss Rachel Baker, in the city of New-York, in the winter of 1815, during her abstracted and unconscious state, &c." This volume, which, as I understand, is the joint production of Dr. Samuel L. Mitchill and Dr. John H. Douglass, embraces a complete history of Miss Baker's case, up to the time it was written, in 1815. It contains, also, a large number of similar cases of mental affection, and an able and ingenious Essay, by Dr. Mitchill, on that state of the human mind intermediate between sleeping and waking.

Hannah Baker, was born in Pelham, in the state of Massachusetts, on the 29th of May, 1794. Her parents were pious Presbyterians; and Rachel was early taught the importance of religion, and instructed in a knowledge of the bible; though her opportunities for acquiring an education, have been limited to seven months attendance in a common school. From childhood she appeared to possess a sober contemplative disposition; but her mind was not sprightly nor vigorous, nor was she much disposed to improve it by reading. At the age of nine years, she removed with her parents to the town of Marcellus, in the state of New-York. From about that time, she says she has "frequently had strong convictions of the importance of eternal things, and that the thoughts of God and eternity would make her tremble."

In June, 1811, while on a visit to the town of Scipio, she was deeply affected in witnessing the baptism of a young lady; and from that period, she was impressed with an increased conviction of her own sinfulness, and consequent endless misery. She soon after returned to Marcellus, with a determination to suppress her religious anxiety; and if possible, to conceal her distress from every person. But notwithstanding this resolution, the anguish of her mind was depicted in her countenance, so that her friends frequently solicited, in vain, the cause of her dejection. About the 1st of November following, while conversing one evening with her mother, she, for the first time, poured out her

feelings in the bitterness of despair. She confessed her religious concern, and deplored her hopeless situation; but, in the mean time, earnestly requested, that her mother would never reveal it. For several days following, she ate and slept very little.

On the evening of the 28th, as she was sitting in her chair, apparently asleep, she began to sigh and groan as if in excessive pain. She had said but a short time before, that she should live but a little while; and as she now repeated the expression, her parents were apprehensive that she was dying. This evening she talked incoherently, but manifested in what she said, much religious concern for herself and her companions. She continued almost every night, talking in her sleep in this way, till the 27th of January, 1812. On that evening, soon after she fell asleep, she was seized with a fit of trembling; shrieked aloud, and awoke, filled with terror and agitation. Horror and despondency came upon her with overwhelming power—with an agonizing sense of her own vileness, her imagination ran wild with the dread of a miserable eternity, and of her speedy and inevitable doom. But this desperate phrenzy was soon succeeded by a calm—her mind suddenly became tranquil, and in her nightly devotions, which were now regular and coherent, she poured forth a spirit of meekness, gratitude, and love. From this time, the whole tenour of her soul seemed to be changed;—she was incapable of expressing her

sentiments of divine things clearly and definitely when awake; but her sleeping exercises were so fervent, so solemn, and so impressive, that but few who heard them doubted, that they were the genuine fruits of penitence, piety, and peace.

These somnial paroxysms are described with so much clearness and accuracy by Dr. Mitchill in the Essay to which I have referred, that it would be doing injustice to the subject and to him, to give them in abstract, or to attempt a description in any other than his own words.

Referring to his division of "*Idiopathic Somnium*," the Doctor says, "to the latter of those remarkable affections of the human mind, ('Somnium cum religione,') belongs the case of Miss Rachel Baker, a young woman, who for several years, has been seized with somnium of a devotional kind, and of a very extraordinary character, once a day, with great regularity. These quotidian paroxysms recur with wonderful exactness, and from long prevalence have now become habitual. They invade her at early bed-time, and a fit lasts usually about three quarters of an hour. A paroxysm has been known to end in thirty-five minutes, and to continue ninety-eight.

It invades her with a sort of uneasiness of the spasmodic kind, anxiety in respiration and hysteric choking. There is, however, no chill or even coldness. Nothing like the torpor of an ague. There is no febrile excitement, nor any sweating stage at the close. The transition from the wa-

king state to that of somnium, is very quick,—frequently in a quarter of an hour or even less. After she retires from company in the parlour, she is discovered to be occupied in praising God with a distinct and sonorous voice. During the paroxysm, her pulse varies but little from the common beat. The heat of her skin is scarcely, if it all, changed; the pliancy is not sensbly altered by a want of redundancy of perspirable fluid. The surface is soft and delicate as it ought to be;—on some of those occasions, there is a sensible acceleration of the motion of the heart and arteries. The countenance, after a protracted exercise, particularly if interrupted with questions and answers, indicates uneasiness and fatigue. Her discourses are usually pronounced in a private chamber, for the purpose of delivering them with more decorum on her own part, and with greater satisfaction to her hearers. She has been advised to take the recumbent posture; her face being turned towards the heavens, she performs her nightly devotions with a consistency and fervour wholly novel and unexampled, at this place, for a human being in a state of somnium. Her body and limbs are quiet and motionless; they stir no more than the trunk and extremities of a statue; the only motion the spectator perceives, is that of her organs of speech; and an oratorial inclination of the head and neck as if she was intently engaged in perfoming an academic, forensic, or theological exercise. With her eyelids closed, and with total

inaction of her feet and hands, she, with her visage and voice, makes strong impressions upon her hearers, and commonly awes them to silence, and to a reverend attitude and deportment.

According to the tenor and solemnity of the address, are the attendants affected with seriousness. This not unfrequently is carried to a sense of contrition, and to the effusion of tears. Towards the termination of the exercise, there is often a diminution both of the frequency and force of the arterial pulsation; the muscles of the eyes, on disclosing the lids, have been observed to be in tremulous agitation, and the balls themselves, to be inclined upwards, in the intervals, as is usual in the posture of supplication. She commences and ends with an address to the throne of grace; consisting of the proper topics of acknowledgment, submission, and reverence; of praise and thanksgiving, and of prayer for herself, her friends, the church, the nation, and for enemies, and the human race at large. Between these, is her sermon or exhortation.

She begins without a text, and proceeds with an even course to the end; embellishing it sometimes with fine metaphors, vivid descriptions, and poetical quotations. At the termination of the paroxysm, her fingers have been observed to be firmly closed for a few seconds, and the muscles of the back, arms and lower limbs, to be rigid with a spasm that quickly subsided. The throat is generally affected with something like inflation,

strangling or choking. There is a state of the body like groaning, sobbing or moaning; and the distressful sound continues for a duration varying from two minutes to a quarter of an hour. This agitation, nevertheless, does not wake her; it gradually subsides and she passes into a sound and natural sleep, which continues during the remainder of the night.

In the morning, or at the usual time, she wakes as if nothing had happened; and entirely ignorant of the memorable scenes in which she has acted. She declares she knows nought of the nightly exercises, except from the information of others; notwithstanding the vigour of her recollection, and brightness of her fancy during the performance, even to the astonishment of the bystanders, all the vivid images are as completely effaced, as if they never had existed. If she possessed any consciousness of the transaction at the time, not a vestige of it remains. There are no more traces in her memory, of the occurrences in which she has been so profoundly engaged, than if they had never occupied the smallest part of her attention. She complains not of pain, lassitude, nor of any disorder.

With the exception of the beforementioned agitation of body and exercise of mind, she enjoys perfect health; and as she has no consciousness of these occurrences, she does not rate them as matters of any moment whatever. She knows nothing concerning them but from the informa-

tion of others; the disorder she experiences belongs wholly to the internal senses, and to the corporeal organs immediately connected with them. Exercises so regular in their period, so methodical in their arrangement, so pious in their sentiments, and so pure in their composition, are, by some persons, considered as far above the reach of a mind withdrawn from outward objects, and engaged in its own conception. They therefore suppose, that the whole performance is a trick, and the performer an impostor of the first rank. The reply to this sort of observers is simply this: such are the rare and peculiar circumstances of her case, that more faith is required to suppose it a consummate and practical piece of deceit, than to consider it the result of Devotional Somnium. It may at the same time be added, that the story of imposture is totally contradicted by the correctness and propriety of her conduct. She is, and ever has been, as virtuous, and free from reproach as any young woman in society."*

Such was the character of Miss Baker's Somnial Exercises, when she came to New-York in the month of October, 1814; and her acquaintances affirmed that they had thus recurred, every night regularly, except a few times when interrupted by severe indisposition, from the time they commenced in 1812. Her friends brought her to New-York, with hopes, that the exercise and variety afforded by a long journey; the novelties of a

* Devotional Somnium, page 35.

large city, or a change of atmosphere, would "break the established association." But none of these means produced the effect;—the paroxysms recurred at the usual hour, whether at home or abroad, whether alone or surrounded by a crowded audience.

In consequence of the objections of some of her pious friends, who thought her endowed with supernatural power, "She went back to Cayuga without having been advised by the consultation to seek a cure." In the month of February, 1815, she returned to New-York, to accept the offer of some of her benevolent female acquaintances, who had proposed to give her an education. She entered a boarding school, and applied herself diligently to study, till about the 1st of May following, when, at the close of one of her evening discourses, she suffered an alarming hemorrhage from the lungs. This was supposed to have been produced by her new and sedentary mode of life, and by frequent and laborious speaking. She was bled copiously from the arm, and in a few days, abandoned the school; but the bleeding from the lungs, notwithstanding, frequently recurred with her nightly paroxysms, so that by the 1st of August, she was so much enfeebled, that she was with difficulty carried back to Cayuga.

I have not been able to learn any thing relative to the disease of her lungs, since that time. As her bodily health appears to have had little or no influence in the origin, existence, or cure of her

mental malady, it renders any information on this point unimportant to the main subject of consideration. The very excellent letter from Dr. Guiteau, (which, with the following note, was obligingly communicated by Dr. Mitchill,) completes the history and probable termination of this singular and interesting case. No higher commendation need be bestowed on the plan of treatment adopted by Dr. Sears, than that it was judicious and successful.

TO DR. IVES.

My Dear Sir,

I received a few days ago, from Dr. Guiteau, the sequel of Miss Baker's extraordinary case of Somnium since she left New-York city, and the cure made of her disease by Dr. Rowland Sears.

This singular affection, one of the most memorable on record, has not been registered in the Medical Repository, nor in any other collection of professional intelligence.

It ought to be duly preserved on the historic page. It was a phenomenon. I was in a situation to note well the facts and circumstances. The observers of the symptoms and occurrences were divided into three classes; first, those who supposed the young woman an impostor, and all her performances a deception; secondly, those who considered her divinely inspired to preach the word miraculously, and warn sinners to repentance; and thirdly, those who thought her prayers and sermons but the symptoms of a disease, of which she might be cured as radically as of an intermitting fever, an epilepsy, or of any periodical malady. To the latter of these classes, I belonged.

When I was a member of the consultation assembled to devise a mode of restoring her to health, she was surrounded by persons who would not permit a system of radical and curative treatment to be pursued. Palliative and temporary expedients alone were allowed.

Since her removal to her place of residence, she has been more fortunate. In Dr. Sears, she has found a friend of an intrepid spirit and sound judgment. He projected a method of removing her ailment, and by resolution and perseverance, he accomplished his design.

The publication of Dr. J. H. Douglass, will afford you full information on the case. His "Devotional Somnium" will afford the materials whence an abstract can be made for the good of your readers. With such an introduction or preamble, as you can readily make, I put at your disposal, the letter of my correspondent.

Accept the assurance of

My high esteem, and regard,

SAM'L. L. MITCHILL.

New-York, July 6, 1817.

Trenton, N. Y. June 21, 1817.

SIR,

Having seen some remarks from your pen upon the case of Miss Rachel Baker, the celebrated somniloquist, whose devotional exercises, during her abstracted and unconscious periods, excited the public attention in those parts of the country where she travelled; and whose religious performances were, by many persons, supposed to be a special inspiration from the Deity, I am indu-

ced to believe that an account of the progress of her malady from the time you last saw her till the period of its removal, must be a gratification to you.

In the month of July last, I had an interview with her, at the public house of C. Garrett, in this town, as she was journeying from her father's to the town of Norway, in the county of Herkimer, where she designed to spend some time with her friend and relation, Dr. Rowland Sears; and from whose prescriptions she hoped to obtain relief from, what she deemed, an unfortnate state of mind, of which she was insensible, except from its effects in exciting public notice, and from information from her friends.

On the evening preceding my interview with her, she excited the astonishment of a respectable audience, assembled to witness her extraordinary somnial performances.

I had, for a long time, wished to see and converse with her, and my curiosity was at length gratified through the politeness of Dr. Baker, who accompanied her on her journey.

She was pensive, inclined to silence and retirement, and a degree of melancholy marked her countenance. The fear of wounding her sensibility, led me carefully to avoid any remarks relative to her singular affection.

I consider it a very extraordinary case of *reverie;* the effect, undoubtedly, of habitual devotion at a given hour of each day, for a long time preceding

her unconscious state, in which the energies of her mind became concentrated upon a single object, and were exercised with such vividness as to exclude, in a great measure, the stimulus of external bodies; in which, however, so much pleasurable sensation existed, as excited at the same time, a degree of voluntary exertion, so as to produce that wonderful catenation of motions, and those mental phenomena, concerning which so much has been said and written, and which serve to elucidate the laws of the animal economy.

The opinion of F. Fairfax, Esq. expressed in his letter to yourself and Dr. Douglass, appears to me correct; where he states the result of his inquiry and investigations of her case to be a conviction, "that all that Rachel expresses in her state of somniloquism, is the result of preconceived ideas and opinions; but delivered with a readiness and fluency which is very far above her waking state."

The philosopher who studies the operations of the mind, the irritations, sensations, volitions, and associations, by which it is influenced, and

"How thoughts to thoughts are linked with viewless chains,
"Tribes leading tribes, and trains pursuing trains;
"With shadowy trident how volition guides,
"Surge after surge, his intellectual tides;
"Or queen of sleep, imagination, roves
"With frantic sorrows or delirious loves,"

will find in this singular case, a prolific source of speculation.—Differing from a state of sleep, which

consists in a total suspension or quiescence of volition, her's, as is usual in *reverie*, partakes of the epileptic or cataleptic character; each paroxysm commencing with spasmodic affection of the muscles of the chest and throat,—eventuating in a fixed or chronic spasm of those of the back, and the upper and lower extremities.

Having occasion to pass through the town of Norway, a few days since, I called upon Dr. Sears, who is a respectable physician, and deserves much credit for his skill in arresting the progress of a disease, which had excited alike, the astonishment of the learned and unlearned, the philosopher and the peasant. The Doctor informed me, that Miss Baker arrived at his house the day on which she left Trenton, that a great number of people, desirous to behold her person, and to hear her preaching, assembled soon after to witness her nightly performances. He signified his determination to attempt her cure, during a short stay she was to make at his house; and in a friendly manner requested them to disperse; but this he could not effect without severe censure from some, who supposed her divinely commissioned to instruct mankind; and that an attempt to check her religious devotions and exhortations, (which, however, were periodically performed, whether there was an audience or not,) would be nothing less than resisting the special revelations of Heaven to the people of the present age.

Among other objects, it was a primary one with Dr. Sears, to rouse her from a degree of melancholy, by which she was considerably depressed, and to invigorate her faculties by the cordial and exhilirating influences of hope. His patient had been long under the influence of religious impressions in her waking state, and in the habit of prayer. He advised her to change the period of her devotions, and to commence them at an earlier hour of the day; to which she assented, and afterwards practised accordingly. He then exhibited two grains of opium, an hour or two before the expected paroxysm; the effects of which were soon apparent, and such as might have been expected. She complained of singular feelings, which he told her were the effects of the opiate, and from which she had nothing to fear. She was now advised to go to bed; soon after which, her nightly exercise commenced. At that very moment, some cold water was dashed, with force, into her face, which dissevered the chain of catenated motions. The spasms, after an interval of a minute or two, returned, and were again checked by the dashing of water, which was continued till the period passed away. She then rested well through the remainder of the night; and, in the morning, appeared as well as usual, except that from the effects of the opium, she had head-ach and some little disturbance at stomach. At the same hour on the second day, the like quantity of opium was again exhibited

and also the same process of dashing water resorted to ;—this lessened the convulsive action and tendency to talk. On the third, the same course continued—spasms less, and more easily overcome. Fourth day, the same quantity of opium and at the same hour of the day, with the addition, during the day, of divided doses of camphor, castor, and gum fœtida ; carefully avoiding indirect debility from excessive stimulation.

To obviate costiveness, and to prepare her system for the better effects of stimuli, cathartics of ol. ricini, &c. were occasionally resorted to. Dr. Sears' principal dependance, however, was opium, which was never omitted at the stated period.

After a few trials, perseveringly persisted in, he had the pleasure of witnessing a diminution of her spasms ; and her somnial prayers and addresses ceased. Three distinct convulsions usually ushered in her exercises :—they were lessened to two, which led to still further efforts on the part of the Doctor, by which her spasms were reduced to one ; and, in a few days, he felicitated himself in their entire removal. Miss Rachel Baker now enjoys perfect freedom from her somniloquism. To guard against a return of her paroxysms, the exciting powers, which effected its removal, were occasionally continued for many weeks.

Thus, Sir, have I given you the particulars of Rachel's case, as I had it from Dr. Sears himself, who assures me, she has continued free from her disease ever since she left his house ; which, if I

am not mistaken, was in the month of September last. This cure, so highly creditable to Dr. Sears, explains the nature of a wonderful disease, (of which there are comparatively few such examples on record,) and it ought to be given in detail to the public, as well for the honour of Dr. Sears, as for the benefit of the medical faculty, and a reproof to the credulous.

I am, Sir,

With sentiments of high respect,

Yours, &c.

LUTHER GUITEAU.

S. L. Mitchill, M. D. &c.

CASE

OF A

REMARKABLE DISEASE

OF THE

LARYNX and TRACHEA.

WITH A PLATE.*

BY JOHN C. CHEESMAN, M. D.

One of the Physicians of the N. Y. Dispensary.

COMMUNICATED BY JAMES C. BLISS, M. D.

Fellow of the Society.

Read the 16th of October, 1817.

RICHARDS, a boy of 4 years of age, in April, 1817, was found labouring under great difficulty of breathing—tongue slightly furred—pulse full, but neither frequent nor hard—bowels regular—skin cool, and a little moist—some cough, but not tight. From his mother's account, it appeared, that he had been troubled with difficulty of breathing, for six or eight weeks, which was thought to

* EXPLANATION OF THE PLATE.

1.—Under surface of the epiglottis.

2.—Excrescence in the trachea.

3.—Diseased appearance of the arytenoid cartilages.

resemble asthma; and, that a high fever had accompanied its first attack.

There was a difficulty in ascertaining the precise nature of the disease; but the little patient pointed out the seat by applying its hand frequently to the upper part of the throat.

Treatment—emetics—epispastics, and calomel, with James' powder; but all without benefit.

On the third and last visit, the child was breathing with extreme difficulty; but without the peculiar croaking which is so usual in cynanche trachealis. The pulse was very feeble;—considerable stupor existed; and when he was roused, there was a peculiar staring of the eyes. Five hours after this visit he died.

We directed our attention, in the dissection, to the parts about the throat; and all appeared to be perfectly natural, except the larynx and trachea; which had taken on a disposition to the formation of *verrucæ*, or fleshy excrescences very much resembling them.

The under surface of the epiglottis was studded with this peculiar disease; and a cluster, about the size of a pea, had formed about one inch and a half from the opening of the larynx; but the most considerable portion of disease, was immediately connected with the arytenoid cartilages, and of such magnitude as very nearly to close the rima laryngis.

AN

EXTRAORDINARY INSTANCE

OF

OBSTRUCTION in the COLON.

BY WRIGHT POST, M. D.

Professor of Anatomy in the University of the State of New-York, &c.

COMMUNICATED BY JAMES C. BLISS, M. D.

Fellow of the Society.

Read the 16th of October, 1817.

Mr. T. after complaining a few hours of uneasiness in the bowels, was seized on the 1st of October, with a violent pain, which recurred at short intervals, with great severity, about the umbilical region. The symptoms seemed to be those characterizing a spasmodic cholic. Bleeding, warm bathing, anodynes, enemata, &c. were employed, but without any permanent benefit;—and the patient died about sixteen hours after the attack.

The body was examined about thirty hours after death; and upon opening the abdomen, the following appearances were remarked.

The first thing which presented, was the colon almost black, and so distended, as to measure for a considerable extent, nearly six inches in diameter. The commencement of this intestine, was removed from its usual situation to one near the umbilicus; and forming several convolutions which

concealed, in a great degree, the small intestines. It was evident that some obstruction had been the cause of this enlargement and discolouration;—and upon tracing this distended portion, it was found to proceed towards the root of the mesentery, and to be confined in that situation. I then traced (beginning from the rectum,) the other portion, which was perfectly empty, and without any marks of disease. Its course was the usual one, till I arrived at the upper extremity of the left kidney; from whence it passed transversely to meet the distended part in its confined position.

It did not at first, appear obvious what occasioned this confinement of the colon; but it was evident, that it was here that the intestine was so strictured, that nothing could pass through its channel. A little examination, however, made it apparent how things were situated. The mesentery, near its attachment to the spine, was much narrower than usual, and it was found, that by some unaccountable movement of the whole mass of small intestines, it had been made to encircle the colon, and falling by their weight to the lower part of the cavity of the abdomen, had drawn it so tight around the large intestine, as to occasion the fatal obstruction. To release, therefore, the colon from its confinement, it was necessary to raise the whole volume of small intestines forwards and upwards, and then to pass them down behind the distended part of the colon. This removed the cause of the stricture, and liberated the incarcerated intestine.

REMARKS

ON THE

EFFICACY of FRICTION,

IN

PALSY AND APOPLEXY.

PROVED BY CASES.

BY CORNELIUS E. DE PUY, M. D.
Fellow of the Society.

Read the 16th of October, 1817.

THE subsequent cases are calculated to prove, that FRICTION merits more confidence, as a remedy in the treatment of paralytic affections, than what it generally obtains in practice; and that its value is not duly appreciated because its use is not properly understood. They afford a practical demonstration of its efficacy; and justly entitle it to primary consideration, as a powerful and speedy method of extending relief in the attack of these alarming and frequently fatal diseases;—not only where feeling, and the power of voluntary motion are partially interrupted, but also in the complete and universal cessation of the animal functions

In addition to the satisfactory, and, in some respects, extraordinary evidences contained in the cases about to be detailed, it may be remarked, that during an attendance of two years, as House Physician in the New-York Alms-House, in connection with my colleagues, every recent case of paralysis which occurred in that institution, was, with one exception, cured in the same manner, and with equal facility; and that the same remedy, when daily and properly applied, was essentially serviceable in old and chronic affections of this class;—particularly when the disease depended on debility, or the abuse of medicines, as mercury.

Having had frequent occasions of proving its efficacy, and having as frequently enjoyed the pleasure which is felt in observing the unquestionable utility of our means in alarming and critical emergencies, I can venture to recommend it with the confidence which experience inspires.

The effect of Friction, like that of every other remedy, depends, in some measure, on its management; and it will be necessary to subjoin some cautions respecting its application. But patience and perseverance are chiefly required to ensure success. It is often necessary to continue it a discouraging length of time, before any evidences appear of what assiduity may ultimately accomplish. Let not the physician despond—for, in a great majority of cases, he will be rewarded

with the pleasing satisfaction of having, at least, rescued the patient from a helpless and miserable existence, and often from imminent death.

But the following cases supersedes the necessity of argument or persuasion;—it exhibits the remedy under circumstances which are its best recommendation; and afford the strongest inducements to a faithful trial.

Case 1.—John Brannan, a robust, plethoric sailor, was admitted as a patient, in the N. Y. Alm's House, with an ulcer on his leg. At the age of 52 years, he still retained that vigour of constiution which was indicated by a stout compact bodily frame, manifesting uncommon muscular strength, and evincing an original predisposition to the following attack. Whilst leisurely walking the floor, in full health, on the 7th of April, 1812, he suddenly lost the use of his left side, and fell with the force of his whole weight. I did not see him until the afternoon of the 8th. His left side was then completely deprived of the power of motion, and insensible to the prick of a pin. The relaxed and pendulous appearance of the soft parts of this side, especially of the face, formed a striking contrast to the firmness of fibre, and expressive muscular energy of the right. His pulse was full—articulation impeded, and intellect somewhat impaired. He said, that, when attacked, it appeared as if he received a heavy blow on the forehead, and that he had never been in a similar condition. The

medicines which had been ordered by the associate House Physician, had afforded him no relief.

About sixteen ounces of blood were immediately taken from his arm, but without any perceptible benefit.—The frequent inefficiency of the ordinary means, even under the most judicious regulation; the generally tedious progress of recovery and consequent protracted cure, when they prove successful, made me anxious to adopt some more certain and speedy method to rouse the patient.

He was, accordingly, undressed, and two men were directed to rub his extremities and side with common clothes brushes, which were constantly kept wet with diluted tinct. capsic. annui, and aqua ammonia. The warmth and redness of the skin soon increased; and after the friction had been uninterruptedly continued for near an hour, on different parts of the affected side, sensation began to return; and he soon after complained that the rubbing became painful. Flannel was now substituted for the brushes, though the latter were occasionally resumed. Shortly after, a slight motion could be observed in the muscles of his shoulder and thigh, when he was requested to move them. This prospect of success induced the assistants, though much fatigued, to continue their exertions with more cheerfulness and fidelity. The power of voluntary motion rapidly increased, and it was successively acquired in the lower joints. In an hour and a half from the time

of commencing the friction, he had so far regained the use of his affected limbs, that he could raise his hand to his head, and move his leg in every direction;—his fingers and toes were also under the controul of the will; and feeling was retored in his side;—he only complained of weakness in his extremities, similar to fatigue from violent exercise. Epispastics were applied to his ankle and wrist, and a cathartic of calomel and jalap was administered. Gentle frictions were daily continued, and laxatives were occasionally repeated. He walked with crutches on the 9th, and was enabled to dispense with them in a few days. At the expiration of a week from the attack, he voluntarily left the hospital ward, and resumed the ordinary labours of the healthy paupers.

In the succeeding winter, the same patient was threatened with a similar attack by general dulness; sense of numbness in his left side, and fulness of the head. These symptoms were soon removed by the daily use of the brush, applied by himself.

Case 2.—Whilst sailing up the North river, in June, 1815, I observed in the evening, that one of the boatmen, a tall, athletic man, about the age of 28 years, appeared to be indisposed. On inquiry, I ascertained that he was addicted to the intemperate use of ardent liquor, and that he had been indulging for two days past,—though he was not intoxicated at this time. He was heard to

groan heavily during the night, and appeared to be much oppressed in respiration. In the morning, he had some fever;—his countenance appeared red and bloated, and his eyes were considerably suffused with blood. He rose to take some breakfast, and whilst putting on his coat, he suddenly fell back, and struck with his head on a trunk. He laid in a stupid state, and all his muscles were rigid with spasm. His pulse was full and bounding, and breathing loudly stertorous. He was freely bled from the arm;—the muscles became relaxed during the bleeding; his pulse sunk, and the apoplectic symptoms appeared less alarming. His extremities were then rubbed with brushes; as in the preceding case; and in about fifteen minutes he was perfectly rational,—quite calm, in the full possession of his locomotive powers, and walked to his bed. Small blisters were applied to his wrists and ankles;—a natural sleep soon succeeded, and he awoke perfectly restored, though considerably exhausted by the bleeding; which was, perhaps, unnecessarily profuse; and I have since been inclined to think, that he might have been as readily recovered with less depletion.

In the two following cases, the utility of Friction is manifested under such unpromising circumstances, as long predisposition, age with its attending debility, and strong evidences of serous effusion; and they also, in some measure, prove the incor-

rectness of that discouraging prognosis, that "palsy is rarely cured when it comes on in old age."

Case 3.—Mrs. L. aged 80 years, of a phlegmatic temperament, predisposed to paralysis both from original conformation and acquired habit of body, suddenly lost the power of voluntary motion in her right side, about the middle of April, 1812;—the sense of feeling was also much impaired.

She was ordered to be rubbed with flannel kept wet with the tinc. of capsicum annuum. The sense of feeling was soon completely restored; and she, in some degree, had regained the power of moving the affected limbs, when it became necessary to defer the operation, on account of the fatigue of the assistant. The friction was daily repeated with evident benefit. The use of wine and nourishing diet was directed; and mild laxatives were occasionally given. She walked the floor with crutches within a week from the attack; and in three weeks, she had regained her former strength and use of the palsied extremities.

Case 4.—Thomas Orr, 65 years old, subject to incontinence of urine, had been an invalid for some years, on account of weakness in his lower extremities, and the general infirmities of age, which had confined him to his bed for some months previous to the night of January the 9th,

1813, when his right side become palsied. In the morning, he could partially contract the muscles of the shoulder and hip of that side, but was unable to stir the whole of either limb;—very little sense of feeling remained. His face was much distorted, and articulation was rendered indistinct;—he appeared very drowsy, and became unusually petulent when disturbed;—pulse and skin indicated considerable febrile action:—he had a natural evacuation from his bowels the preceding day.

He was ordered to be rubbed three times a day with a common clothes brush, kept wet with the vinegar of mustard. His debilitated state prevented the rubbing from being long continued at a time. On the 11th he could raise the affected arm and leg, and move all his joints. On the 16th he thought they were as strong as those of the left side. In the night of the 17th, he had a relapse with a recurrence of the symptoms attending the first attack. A gentle cathartic was ordered; and the friction was more frequently repeated. By the continuance of this treatment, for a few days, he regained his former strength, enjoyed his ordinary health for several months, and at last died with diarrhœa.

The two subsequent cases probably partook of the nature of that kind of palsy, which is termed *spasmodic*, by Hoffman, and which is more particularly incident to hysterical habits. It does not appear to depend on compression; but is rather owing to a suspension, or derangement of nervous energy

the part. Cullen assigns an immobility of nervous power, as its cause; in effect, it appears to be nearly allied to his species *venenata*;—those means which are calculated to rouse the suspended, or excite the languid action of the nerves, are indicated in both. Nothing appears better adapted to these purposes than friction; and its decided effect, particularly in the first of these cases, attaches an additional importance to its use.

Case 5.—Mrs. E. S. a widow, aged 21 years,—of a fair, and apparently healthy complexion,—naturally of an animated disposition, and very susceptible of impressions, was admitted into the New-York Alms-House in the evening of the 7th of January, 1813, with strong and frequent hysteric convulsions, with which she had been attacked during the day. She was soon relieved by venesection and liberal doses of antispasmodics. She had passed no urine in two days, and complained much of violent pain in the bladder; which, on examining the abdomen, appeared to be much distended; half a pint of the decoction of plantain seeds soon eased the pain, and enabled her to empty the bladder in one continued discharge. The paroxysms of convulsions frequently recurred during the following month; and exhibited all the wild and varied extravagance which characterizes the aggravated forms of hysteria. They were generally arrested, for the time, by irritating her gums, and by burning feathers under her nose, du-

ring the interval obtained by the irritation; these fumes quieted the fits much sooner than opium, or any other antispasmodic. Her menstrual discharge, which had been suppressed for two months, was restored without any mitigation of the hysterical symptoms.

On the 7th of Feb. at one o'clock, P. M. her right arm became instantaneously paralytic.—A vigorous application of the brush, kept wet with the vinegar of mustard, completely restored it in half an hour. Shortly after, she complained of a pungent and circumscribed pain in the head; and at 3 o'clock, P. M. the whole of her left side became motionless, and insensible to the prick of a pin. The brush was again resorted to, and applied by two female assistants. The palsied side was so completely insensible that she did not feel the brush, which was inadvertently passed over a blistered surface on her side, where an epispastic had been laid for a slight pneumonic affection; and which, in consequence of her linen, was not perceived until the bloody appearance of the brush discovered the circumstance. Sensation soon began to return; first, in the blistered surface; next, in the shoulder and hip, and gradually extended down to her fingers and toes. The sensibility of her skin became so acute, before any voluntary motion was perceptible, that she could not refrain from tears, and affecting solicitations to have the rubbing discontinued. Notwithstanding her entreaties, it was persisted in for an hour and a half,

when she had the use of all her joints, and walked a few steps without assistance,—though a weakness, which remained, occasioned her to limp. She complained of soreness in the muscle;—the surface also smarted considerably from the long continued irritation of the rubbing, which had abraded the cuticle in several places. Her left leg was affected with severe cramps in the evening; it was briskly rubbed with flannel for a few minutes, when the spasms suddenly and completely left that limb, and immediately seized the right leg;—the friction was now, in turn, applied to this extremity, and in a short time the spasm was again as instantaneously translated to the left leg. These transitions continued, with unabated violence, as often as the affected limb became warm, and began to smart from the friction. After several repetitions of this occurrence, the spasms were at last, effectually relieved by bathing her feet in warm water. She rested comfortably during the night; and in a few days, regained the former strength, and the complete use of her limbs; but for several months remained subject to her hysteric fits.

Case 6.*—Miss E. L. aged 22 years, of an hysterical constitution, and subject to convulsions, which were rendered more frequent and violent

* This patient belonged to the part of the house, superintended by my friend, Dr. P. D. Schenck, to whom I am indebted for the above abstract of the two first attacks;—the last occurred under my own observation.

by a painful affection of the bladder; the symptoms of which resembled those of urinary calculus, though no stone could be detected with the sound.

During the spring of 1813, she was twice attacked with complete hemiplegia of the left side, and once with paraplegia. In two of these attacks, the use of friction, as in the cases related, enabled her to walk some steps without assistance, an hour after it was commenced; when she also had the controul of her fingers and toes. Her resistance to the application of the brush, prevented the rubbing from being continued a sufficient length of time to restore her from the third attack, by one operation. But she entirely recovered in a few days, by a frequent and more gentle use of the same means.

It is also in the more aggravated form of the *comata*, where the danger is more imminent, and where the remedies are required to be of the most vigorous character, that Friction is not only an useful and almost indispensable auxiliary, but should often be the chief dependance; especially in Apoplexy proceeding from torpor, or accompanied by debility. The brush would frequently be an excellent substitute for the lancet; which, however necessary in a majority of instances, is often too deeply plunged, and generally too indiscriminately used. The very prevalent impression that copious blood-letting is the sovereign, if not the only remedy in apoplexy, it is to be feared, has, in

many instances, induced an inconsiderate and destructive profusion of the vital fluid, where the disease, perhaps, depended on a want of energy consequent to a deficiency of blood; or, on such a deranged state of the nervous system, which bleeding was calculated to aggravate.

The complete and speedy relief which friction afforded in the above cases, renders it probable that palsy more frequently depends on some particular condition of the nervous system, than on circumstances extraneous to the nerves;—and that its proximate cause oftener consists in a deficiency, irregularity, or derangement of the nervous energy or action, than simply in an interruption from external pressure, at least from that produced by extravasation; and this consideration should have more influence in practice. The same mode of reasoning is applicable to apoplexy; and the same happy result might here be anticipated from the use of friction, in many cases, in which the treatment, usually depended on, proves only palliative or entirely useless.

In the first of the subjoined cases, blood was drawn in compliance with general practice; and that the patient might have the advantage of every probable means of recovery. Notwithstanding the quantity was small, it increased the stupor,—so far as we are allowed to judge, respecting cause and effect in the operation of medicine, from manifest consequences which succeeded their administration. But though the general utility of

blood-letting may have led to an abuse of it, in particular cases, yet local bleeding, in connexion with friction, will often be of essential service, even where circumstances forbid the more free and general use of the lancet. And again, friction may also greatly contribute to the patient's recovery, where copious bleeding is imperiously required.

Case 7.—Mrs. M'D. aged 52 years, rather corpulent, of a phlegmatic temperament, gentle in her disposition, and studious of ease, was found in her bed on the morning of the 28th of August, 1812, in a state of insensibility, attended by the usual symptoms of apoplexy. When her name was loudly called near her ears, she muttered, made a few grasping motions with her fingers, and soon relapsed into a state of stupor. About ten ounces of blood were taken from the arm;—an epispastic was applied on the back of her neck, and an enema ordered. The comatose symptoms soon became more alarming; after two hours from the bleeding, she could not be roused in the least degree. Two women were then directed to rub her extremities with clothes brushes, which were constantly kept wet with the vinegar of mustard. She soon became agitated; and first evinced her displeasure by indistinct murmurings;—remonstrances and threats were, in a short time, intelligibly expressed. Her power of motion progressively returned with that of her speech; and her first efforts were to resist the application of the brush.

The frictions were continued for an hour, when she sat in bed without assistance, gave rational answers, and requested something to eat. She walked a few steps alone the same day; and the second day from her attack, the only remaining consequence was a partial mental derangement, with which she had been once slightly affected, some months previous to her attack. She was removed to the lunatic asylum; and at the expiration of a month, returned perfectly rational, and continued to enjoy her usual health during my attendance.

Case 8.—An athletic man, about 45 years old, after a fit of intoxication, was suddenly taken whilst walking on the deck of a schooner, with the usual symptoms of apoplexy; his right side soon after became partially convulsed, whilst his left remained motionless. When I first saw him, he appeared entirely insensible and apparently expiring;—he breathed in a stertorous, interrupted and gasping manner;—his pulse was small, quick, and fluttering;—his eyes and whole countenance had a death-like expression;—convulsions of the right side were frequent, sudden, and of short duration, and appeared like dying efforts. As the circulation in the carotid and temporal arteries, was much more forcible, in proportion, than that of any other part, it was thought advisable to open one of the temporals; when about five ounces of blood were taken, his pulse sunk con-

vulsions ceased, and he appeared so far gone that life was entirely despaired of. But by a vigorous application of the brush to his extremities, and by introducing aqua ammonia into his mouth and applying it to his nose, the powers of life appeared to revive a little; the pulse again became perceptible, and the convulsions in the right side partially returned. The friction was continued with such evident benefit as to induce a diligent perseverance in its use. He had partially regained his reason, together with considerable power of motion and feeling in his left side, when an irritating enema was administered; this proved very serviceable in rousing him;—his recovery progressed so quickly that, in a few minutes after, he walked across the cabin to the close-stool, without assistance. I then ordered an epispastic to his left wrist and ankle, and left him perfectly rational—two hours from the time of my arrival.

REMARKS.

The selection of the most proper means for applying the Friction, is of considerable importance; and some discernment, and even experience, are required to regulate the application, so as to obtain its full effect with the least suffering to the patient.

An open and moderately soft brush is the most useful and convenient instrument for the purpose. It should be more or less stiff and harsh, or soft

and pliable according as the age, sex, natural tenderness of the skin, degree of torpor, and returning sensibility may, severally or collectively, indicate. These considerations will also determine the more or less vigorous or gentle use of it.

A suitable brush may be either mildly or forcibly employed so as to suit particular exigencies; but in tender subjects, slight affections, and on parts where the cuticle is thin, flannel will be more eligible.

Rubefacients are often useful auxiliaries, especially when a powerful irritation is requisite to excite the dormant sensibility in extreme cases, and on parts which are naturally but little susceptible of external impressions.

The friction should be commenced at the upper part of the limb, and on the muscles of the larger joints; and gradually carried down as feeling and the power of motion return.* The feet and hands require much longer labour, and more severe rubbing, than any other part; and the tediousness of the operation, on these parts, will frequently induce the assistants to relax if not closely watched, and even incline the physician to yield in despair, when perseverance would completely accomplish his object. Excitement, when produced, should be diligently supported and cautiously increased:—interruption retards the cure; and even the advantages which may be

* It is remarkable that Friction on the extremities only, will rouse the dormant sensibilities, and excite the natural energies of every affected part, both in palsy and apoplexy.

gained, are, in a measure, lost by discontinuance of the rubbing through ill-timed lenity, fatigue, or premature despondence. The difficulty of recovery increases with the time that the energies of the parts are suffered to remain dormant, or even partially impaired; and the labour and pain of repeated rubbings are ultimately much more than when restoration is effected by one continued operation. It is on this account that, when the disease has become chronic, the benefit of friction is then in no proportion to that obtained by the same exertions in recent cases; and hence, also, the utility of the subsequent application of blisters, which render the excitement produced by friction more permanent and its benefit more secure.

How long the operation is to be continued before the case may be considered as really hopeless, cannot be definitely determined. Some cases may require an active employment of the brush for an hour before any perceptible benefit is derived, and yet be completely cured by perseverance. But the practical observer will be enabled to determine when his duty is discharged, though his efforts are unsuccessful. It should likewise be recollected that some more powerful mode of irritation may succeed after friction has fairly failed; for though it may be conjoined with advantage, it should not supercede the use of other means which may be indicated. The constitutional debility of the patient, as in Case 4th, may render it improper to persist in the

rubbing, the length of time that a complete cure may require, on account of the fatigue and debility the operation occasions.

When the friction is more severe, or the rubefacients more pungent, than the extent of the disease, or the condition of the skin require, sensibility often becomes acute, and the pain even excruciating, before any evidences of muscular power appear; and this often occasions considerable embarrassment in the farther prosecution in the use of the brush, of which Case 5th affords an example; here, the rubbing was at first too free and harsh, and occasioned considerable suffering to the patient;—her pitiful lamentation gave the perseverance in the operation an appearance of cruelty, which, in the estimation of the spectators, was only rendered excusable by the fortunate issue.

Instances also sometimes occur, in which a long continued and severe friction, assisted by external irritants, fails to make a sufficiently powerful impression, but where still more harsh, and what, by the by-standers, may, for the moment, be considered as unwarrantly cruel methods, will often succeed, and change censure into admiration. I subjoin an interesting case of this nature, in a gentleman of this city, which affords an instance of a faithful, but unsuccessful trial of friction; and shows that, though it should prove unavailing, yet dependance may be placed on some more violent *external irritation*, of which fric-

tion is but one mode,—but the one most generally applicable and most extensively beneficial; and its occasional inefficacy should constitute no objection to its general use:—we do not claim for it, the pre-eminence of invariable success.

C— L—, about twenty-five years old, shortly after being exposed, on the 6th of December, 1815, to a damp, chilling breeze, whilst in a profuse perspiration, felt indisposed and retired to bed. His extremities, according to his subsequent account, appeared to become rigid; this quickly increased, and extended over his whole body, and rendered him incapable of the least motion,—but he still retained his consciousness for some time; and after his recovery, related circumstances which occurred, and repeated observations which were made, for some minutes after the attack.

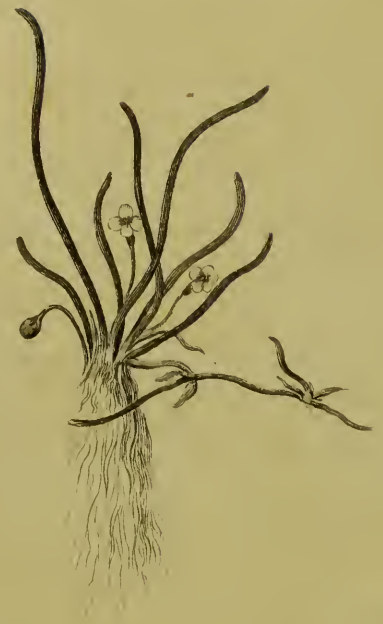
Being solicited to decide, soon after I entered the room, respecting the nature of the affection, I was induced from the general account of the attack and a hasty view of the most obvious symptoms, to pronounce it a case of apoplexy; but, on a more minute examination, a considerable degree of unaccountable intelligence was discovered in his fixed, though vacant eye, and in the expression of his whole countenance,—indicating a wish, and an internal effort to answer to the loud and repeated questions of his anxious friends. The apparent symptoms of apoplexy became more marked and

threatening; and, as he afterwards related, he soon lost all consciousness of external occurrences, whilst his mind became wholly occupied with a thousand fantastic images, which passed in rapid review, and gradually became more indistinct, and appear to have been succeeded by entire torpor or suspension of intellect and sensation.

A few ounces of blood were taken from the temporal artery;—friction, by means of brushes, were constantly and faithfully applied to the extremities, for about an hour and a half; his gums were repeatedly irritated, and aqua ammonia was introduced into his mouth and nostrils; but all with little or no effect;—only a slight motion was sometimes observable in the larger joints. The assistants became exhausted, and his friends despaired of life.

As a dernier resort, a smoothing-iron moderately heated, was applied to the inside of his ankles, over flannel, which was interposed in order to controul the transmission of the caloric; with this view the irons were also frequently raised. He soon became agitated;—muttered and groaned incessantly;—a spasmodic contraction of the muscles of the leg occurred, and became more forcible at each re-application. But though he moved his legs with convulsive violence, and even intelligibly ordered us to desist, yet the same stupor continued to supervene as often as he was left at rest. Another iron, considerably hotter than the first, was substituted, though contrary to the earnest so-

licitations of the family. The irritation it produced proved too violent; and it was immediately suceeded by such strong convulsions that he was with difficulty held in bed. But in less than a minute, he became perfectly rational; and had acquired the complete use of all his limbs. The heat of the irons had not vesicated the skin;—blisters were applied to his ankles—sinapisms to his feet, and an enema was administered. The only inconvenience which he experienced the next day, was a general soreness, which soon left him, and he still continues in good health.



Limosella.

Tillaea.

A Anderson Sc.

BOTANICAL DESCRIPTION

OF THE

TILLÆA CONNATA,

AND

LIMOSELLA SUBULATA.

BY ELI IVES, M. D.

Corresponding Member of the Society.

COMMUNICATED BY ANSEL W. IVES, M. D.

Fellow of the Society.

Read the 16th of October, 1817.

DEAR SIR,

The plants which I gave you, are not new as respects their generic character, though they are so as inhabitants of this country, and probably are new species. The plant with a white flower is a *Limosella;* the other with parts of fructification still more obscure, is a *Tillæa*, as I informed you when I gave you the plant. I send the descriptions and drawings of both to make such use of them as you may think proper. I have been investigating a third plant, which you saw with the Tillæa and Limosella, and which is probably the same that Pursh has called *Peplis*, though it

certainly does not belong to that Genus—Stamens never more than two—for the most part only one.

TILLÆA.

GEN. TILLÆA, *Cal.* 3, s. 4, partitus. *Petala*, 3, s. 4, æqualia. *Caps.* 3, s. 4, by-poly-spermæ.

Sp. CONNATA, caule erecto; fol. connatis, linearibus, carnosis; flor. axillaribus. *Persoon Synop. Plant.*

It is locally associated with the Limosella.

The Tillæa of the United States, though corresponding with the description of the South American plant, is probably a new species. Viz.

TILLÆA. *Cal.* 4, parted. *Petals* 4, equal. *Capsules* 4, many seeded.—Plant annual, smooth, fleshy; root fibrous; throwing out branches irregularly from the axills of the leaves; flower axillary, solitary, sessile; leaves subulate, fleshy, connate.*

LIMOSELLA.

GEN. LIMOSELLA. *Cal.* 5 fidus. *Cor.* 5-fida, æqualis. *Stam.* per paria aproximata *Caps.* 1-locularis, 2-valvis, polysperma.

Sp. TENUIFOLIA, *Fol.* linearibus angustissimis vix apice dilatatis; scapis fol. æqualibus.—*Hoff. Germ. vol.* 2 *p.* 29.—*Persoon.*

It is found by the side of brooks where it is occasionally overflown.

* This I have been informed by Mr. Collins, has been found by Mr. Nuttall in the Delaware, near Philadelphia. From the general description of the Tillæa Connata in the flor. Peruv. our plant appears to be another, and a new species.

Our Plant, which appears to be more analagous to the *tenuifolia* than to any other species described, is characterized as follows:

Limosella Subulata.—The root is annual, throwing out cylindrical runners which take root at their extremities, and form new plants. Leaves are radical, cylindrical, smooth, entire, a little flattened, near the extremity obtuse. They appear perfectly cylindrical in June; in August and September, when the growth is more rank, they become (particularly the longest leaves,) compressed near the apex. Scape naked, one-flowered, half the length of the leaves; flower-stalk becomes reflected as the fruit ripens. Segments of the Calyx, 3, 4, and 5 cleft; or, when the calyx is 3 cleft, 4 segments are united in 2 pairs; when 4 cleft, 2 of the segments are united. Corolla with a swelling tube; the limbs of the flower, which appears in July, have 5 equal expanding segments; in September the segments are often 4;—there is no uniform inflexion of the segments. Stamens in pairs, (sometimes but 3,) approaching, arising from the tube of the corol. Capsule globular, one-celled, and apparently one-valved; seeds many, attached to a large globular receptacle.

This plant was first observed in 1816, and specimens were given the same season to Mr. Rafenesque, and also to Dr. M'Bride of Charleston. It flourishes in great abundance in the Housatonick,

and in most of the rivers which empty into Long-Island Sound, within the range of the tide. It has been found this year by Messrs. Nuttall and Collins, on the banks of the Delaware, near Philadelphia.

Your's, &c.

ELI IVES.

ANSEL W. IVES, M. D.

New-Haven, October 1, 1817.

While this paper was in the press, I received the 6th number of the 1st volume of the "Journal of Natural Science of Philadelphia," in which the same plants are described by Mr. Nuttall. He considers these, new species of the Tillæa, and Limosella, though he has not given them specific names. He has also described two other plants, which he found locally associated with the Tillæa and Limosella, which he thinks will form new genera. One of these, to which he has given the generic name of "Crypta," he says he has been led to suppose might be the Peplis Americana, of Mr. Pursh; but adds, "it belongs neither to the same class nor order, in any existing system of Botany." Probably this is the same plant which is mentioned by Dr. Ives, in the beginning of his letter. There has been a singular coincidence in the discovery of these three plants on the banks of the Housatonick and the Delaware; and, though it will be found from Dr. Ives' letter, that Mr. Nuttall laboured under a mistake, in supposing them to have been "found *more recently*, near New-Haven in Connecticut, by Dr. Ives;" still, as they seem to have been *described* by both, about the same time, it is presumed that the gentlemen will be willing to divide the honour of the discovery between them.

A. W. IVES.

BIOGRAPHICAL SKETCH

OF THE LATE

EDWARD POST, ESQ.

Member of the Royal College of Surgeons, London; Lecturer on Anatomy, in the University of New-York, and Fellow of the Physico-Medical Society of New-York.

BY Dr. GUY C. BAYLEY,

Fellow of the Society.

Read by request.

The subject of the present biographical notice, was the eldest son of Professor Wright Post, and grand-son of the late Dr. Richard Bayley; and was born in New-York, on the 15th of March, 1791. At an early age he was placed under the care of the Right Rev. Richard C. Moore, then a resident of Staten Island, by whom he was initiated into the rudiments of mathematical and classical learning. At his eleventh year he was removed to Columbia College, where he continued till the age of eighteen. He remained two years with each of the junior classes; during which period he made great proficiency, particularly in the French language, geography and history. His protracted pupilage in this seminary was in accordance with the plan of education prescribed by his father, who deemed it improper to invest him with academic honours, at the early age his talents would have enabled him to graduate with credit.

Having received the degree of Batchelor of Arts, he

commenced the study of medicine under the direction of his father. For this profession, he, manifested a strong predilection, which was warmly cherished by his parental instructor.

In 1811, with a mind amply stored with the elements of medical science, derived from private study and public instruction, he embarked for Europe. In the schools of England and France he acquired large accessions of medical knowledge. He diligently attended the Infirmaries, in order to improve himself in anatomy and practical surgery; and for a time, acted as dresser in Guy's Hospital. The copious collection of Manuscript notes, which he has left, taken from the lectures of the most eminent professors of the different branches of medical science, bear respectful testimony, that his transatlantic advantages were not unimproved.

During his residence on the continent he travelled through France, Italy, and Switzerland, visiting every thing worthy of observation, and improving himself in the languages of those countries ;—in the two former of which, he conversed with great accuracy and fluency.

In London, his health became impaired from intense application ; and during the prosecution of his studies at Montpelier, whilst on an excursion, he was attacked at Avignon with rheumatism, with which he had been much afflicted when a boy. It now principally affected his head and breast, and with such violence as to confine him for two months, and render his recovery for some time, extremely doubtful.

On his return to his native city, in 1814, he appeared perfectly restored, and promised to relieve his anxious father from the burthen of his professional duties by being associated with him in his private practice, and also, in consequence of being appointed Lecturer on Anatomy by the Trustees of the College of Physicians and Surgeons.

He was however soon obliged to relinquish all thoughts of practising his profession. An accumulation of cares, in consequence of the necessary absence of his father, (whose ill health rendered a voyage across the Atlantic desirable,) with the disquietudes occasioned by the malignant aspersions of invidious competitors, brought on a variety of troublesome symptoms, which were followed by a partial return of his former disorder. Conceiving that the milder climate of the South, would conduce to his recovery, he embarked for Charleston, S. C. but on the passage he was attacked with hemiplegia, which, after a distressing confinement of five weeks, terminated his existence on the 26th of January, 1816.

This short, but accurate outline of his life is in itself his eulogy. We see him at the early age of seventeen, when the human mind is generally but first unfolding itself, far advanced in a course of literary acquirement, and rapidly progressing to that state of improvement, which enabled him, at the age of twenty-three, to become the preceptor. That he was fully qualified for that office, I appeal to you gentlemen, who had an opportunity of hearing his last lecture, on the anatomy and diseases of the spine; and which, when due allowance is made for his delicate health, I believe I may assert without exaggeration, could not have been surpassed. Deeply have we to regret, that one so eminently deserving, should have been so soon removed from a station he held with such credit to himself, and honour to his parent; who, by this afflicting dispensation, has had his most flattering hopes prematurely blasted, and has been deeply made to feel the instability of human happiness.

As a fellow of the Physico-Medical Society, we have still further reason to deplore his loss. Among its first promoters, with an anxious desire for its progress and utility, what an abundant stock of useful and important facts, might have been derived from his known talents, industry, and extensive classical learning.

In respect to his general character, you, gentlemen who had the pleasure of his acquaintance, can testify to his correct, candid and manly deportment. As his near relative, and associate from early infancy, I here, with a melancholy satisfaction, bear witness to the virtues of his heart, the chaste tenour of his conversation and conduct, the rectitude of his principles, the moderation of his views, amenity of disposition, filial duty and brotherly affection.

It was his misfortune to be too sensible to the opinion of others; he allowed the invidious detractions of designing individuals, to operate too strongly on his finer feelings,—not recollecting that merit can scarce exist without envy, which, like a shadow, proves the substance true.

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Collins & Co. have juſt completed a new Edition of that very valuable work, entitled, "The Modern practice of Phyſic;" exhibiting the characters, cauſes, ſymptoms, prognoſtic, morbid appearances, and improved methods of treating the diſeaſes of all climates, by Robert Thomas, M. D. fifth Engliſh edition, corrected and conſiderably enlarged by the author; to which is added, an Appendix by David Hoſack, M. D. Profeſſor of the Practice of Phyſic, &c. in the Univerſity of New-York.

So high is the eſtimation in which the preſent work is held by the medical profeſſion in England, that five very large editions have, during the ſhort time ſince its publication, already been printed. It is repreſented by different medical critics, as exhibiting a very correct view of the preſent ſtate of medical ſcience in Great Britain, and as condenſing, in a ſmall compaſs, more practical information than any work which has preceded it. The author, however, in his account of certain diſeaſes, and methods of treatment, of which much experience has been had in this country, is believed to have committed ſome miſtakes from inadvertency and miſinformation. The deſign of the appendix, by Dr. Hoſack, therefore, is to correct theſe miſtakes; and to ſtate ſome opinions and modes of practice, which, it is to be hoped, will meet with the approbation of the author.

It is no inconſiderable recommendation of the preſent work, that it is the only treatiſe on the practice of phyſic, republiſhed in this country, which has been written within the laſt ſixteen years.

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